



# AMAZONIA

## Investiga

May 2024. Vol. 13 Issue 77

**PRIMATE**

ISSN 2322-6307  
[www.amazoniainvestiga.info](http://www.amazoniainvestiga.info)



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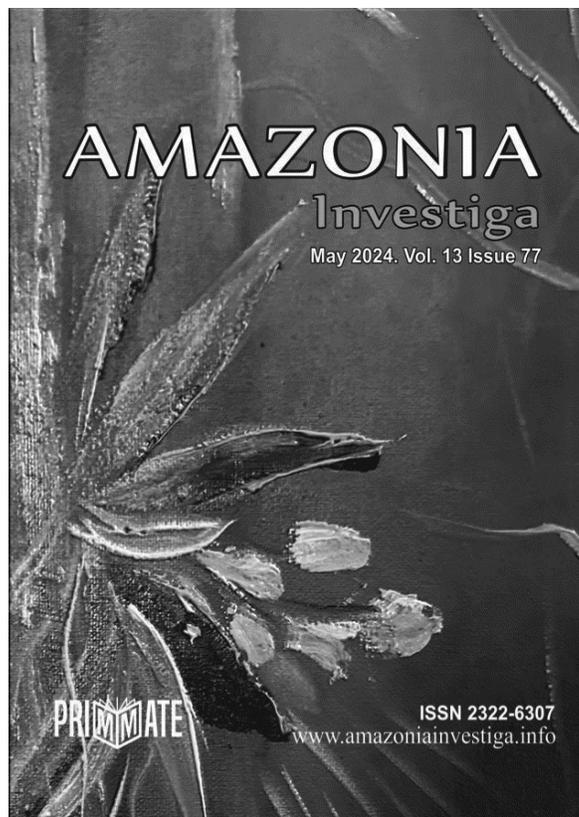
DOI: <https://doi.org/10.34069/AI/2024.77.05>



**AMAZONIA**  
**Investiga**

Virtual, multidisciplinary and monthly scientific publication

## VOLUME 13 - ISSUE 77



**Cover image**

Based on the work of master Wilgberto Ramírez

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DOI: <https://doi.org/10.34069/AI/2024.77.05.1>

How to Cite:

Nuñez Martínez, G., Martínez Cruz, M.A., Chávez Pichardo, M., Trejo Martínez, A., & Arenas Reséndiz, T. (2024). Comparative analysis: sustainable fashion vs. fast fashion. *Amazonia Investiga*, 13(77), 9-19. <https://doi.org/10.34069/AI/2024.77.05.1>

## Comparative analysis: sustainable fashion vs. fast fashion

### Análisis Comparativo: Moda Sustentable vs. Moda Rápida

Received: March 28, 2024

Accepted: May 15, 2024

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#### Abstract

Sustainable fashion is a philosophy centered on the ethical and environmentally responsible production of garments. However, currently prevailing in the market is a model known as fast fashion, which is characterized by mass production of low-quality garments at affordable prices. In this context, our article presents a comparative analysis between sustainable fashion and fast fashion, highlighting how these models represent two divergent approaches in the fashion industry. Overall, this work aims to contribute to the literature by exploring the differences, challenges, and advancements in the development of both trends. The study examines production speed, material usage, working conditions, and environmental awareness, developing a conceptual framework that provides an overview of the complexity of the fashion industry and its potential direction in terms of sustainability and responsible consumption.

**Keywords:** Sustainable development, fast fashion, slow fashion, sustainable fashion, clothing, apparel industry.

#### Resumen

La moda sustentable es una filosofía de centrada en la producción ética y ambientalmente responsable de prendas de vestir. Sin embargo, en la actualidad prevalece un modelo en el mercado conocido como moda rápida, el cual se caracteriza por la producción masiva de prendas de baja calidad a precios asequibles. En este contexto, nuestro artículo presenta un análisis comparativo entre la moda sustentable y la moda rápida, resaltando cómo en la industria de la moda estos modelos representan dos enfoques divergentes. En general, este trabajo busca contribuir a la literatura explorando las diferencias, desafíos y avances en el desarrollo de ambas tendencias. El estudio examina la velocidad de producción, el uso de materiales, las condiciones laborales y la conciencia ambiental, desarrollando un marco conceptual que proporciona una visión panorámica de la complejidad de la industria de la moda y su posible dirección en términos de sustentabilidad y consumo responsable.

**Palabras clave:** Sustainable development, fast fashion, slow fashion, sustainable fashion, clothing, apparel industry.

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## Introduction

The fashion industry is considered one of the most environmentally damaging, ranking just behind the oil extraction and production sector (Diabat et al., 2014). Currently, the fashion industry is dominated by the model known as "Fast Fashion," characterized by mass production of garments at low costs and with extremely rapid production and consumption cycles. Its ever-changing dynamics are driven by rapidly emerging fashions and trends, a key strategy to maintain a profitable position in an increasingly demanding market (Bhardwaj & Fairhurst, 2010).

Although this model is known for its economic contributions and job creation, these benefits are offset by the dynamics of overproduction and overconsumption at extremely accelerated rates (Ramallo, 2018). The large-scale production of fast fashion demands the utilization of numerous natural resources to meet the demand for low-cost and low-quality products (Lobo, 2022; Brydges, 2021). Therefore, the fast fashion industry has become synonymous with concern due to the variety of environmental issues it generates (Niinimäki et al., 2020). The mass production of clothing not only leads to significant emissions of greenhouse gases and water pollution (Abbas et al., 2020) but also results in the generation of textile waste and harmful chemicals.

Faced with the environmental and social impact associated with the rapid growth of the fashion industry, there arises the need to adopt more sustainable practices both in the production and consumption of garments. This change gives rise to the "Slow Fashion" movement, which is a direct response to the fast fashion system that has dominated the industry for decades (Linden, 2016). Slow fashion is characterized by its focus on sustainability, ethics, and conscious consumption, producing durable and high-quality garments. This movement seeks to challenge the predominant model of economic growth in the fashion industry and promote a dialogue about the sector's practices and goals, aiming to drive a shift towards more ethical and sustainable values (Fletcher, 2010).

From slow fashion arises the concept of "Sustainable Fashion," which represents a natural extension of its principles. Sustainable fashion goes beyond slow fashion by incorporating additional approaches such as recyclability, circular economy, and sustainable technologies to minimize environmental and social impact. This contrast underscores the importance of sustainable management in the supply chain in the fashion industry, an extremely long and complex chain (Jacometti, 2019), where the adoption of sustainable practices is essential to address the inherent problems in this industry. This approach has transformed the industry landscape, with designers, brands, and producers adopting sustainable practices that span the entire supply chain (Tyler, Heeley & Bhamra, 2006), from responsibly sourcing materials to ethical treatment of workers and the integration of innovative technologies to minimize environmental impact.

Despite these advancements, sustainable fashion has not yet succeeded in replacing fast fashion as the dominant consumption model. In this context, our article presents a comparative analysis between both approaches, highlighting the differences, challenges, and advancements in the development of both trends.

This study examines key aspects such as production speed, material usage, working conditions, and environmental awareness. Through a comprehensive evaluation, we aim to provide an integrated view of the current landscape and possible trajectories in the evolution of sustainable fashion and fast fashion, thereby contributing to the understanding of the complexity of the fashion industry.

## Literature Review

### *Fast Fashion*

Fast fashion is a business model based on mass production of affordable garments. Fast fashion brands are known for their ability to design, produce, and bring new clothing collections to market in short periods of time. This concept creates a constant turnover of products in stores, thus creating an atmosphere of opportunity and scarcity that drives impulse purchases by consumers. Prominent examples of this model are brands within the Inditex group, which have managed to combine innovation, flexibility, and rapid response to market demands (López Barrios, 2014).

The production process in fast fashion is primarily carried out through outsourcing and subcontracting in various parts of the world, enabling the offering of new collections in short timeframes at affordable prices.

However, despite providing access to fashionable garments at low prices, fast fashion has also been subject to criticism for its environmental and social impact. Large-scale production and rapid inventory turnover generate a significant amount of textile waste and contribute to environmental pollution. Additionally, in many cases, employees in fast fashion factories may be affected by issues such as precarious working conditions (Haug & Busch, 2015) and challenges related to health and safety (Cesar da Silva et al., 2021).

### ***Slow Fashion***

Slow fashion is a model in the fashion industry that seeks to promote the production and consumption of clothing in a more conscious manner, focusing on values such as quality, durability, and ethics in fashion (Niinimäki, 2015).

One of the main pillars of slow fashion is the prioritization of quality over quantity (Puig Torrero, 2017). Instead of creating disposable garments, the aim is to design clothing that lasts over time and withstands wear and tear. This involves using high-quality materials and manufacturing techniques that ensure the durability of the garments. Additionally, slow fashion goes beyond environmental sustainability (Jung & Jin, 2014); it promotes conscious consumption by encouraging consumers to make more thoughtful purchasing decisions (Domingos et al., 2022), choosing garments that align with their needs and personal values rather than blindly following fashion trends. It also values timeless design, which is not subject to fleeting trends and promotes a more enduring and versatile lifestyle.

### ***Sustainable Fashion***

Sustainable fashion is part of the Slow Fashion movement. Sustainable fashion, also known and interchangeably used with other terms such as ecological fashion, green fashion, ethical fashion (Carey & Cervellon, 2014), or eco-friendly fashion, is an approach to the design, production, and consumption of clothing that aims to minimize negative environmental impact and promote fair working conditions in the textile industry.

The primary objective of sustainable fashion is environmental responsibility, which involves minimizing the use of natural resources such as water and energy. Durability and quality are the most important aspects because producing high-quality garments that endure over time reduces the need for constantly purchasing new clothing, thereby minimizing pollution generated by the disposal of garments.

Like slow fashion, sustainable fashion promotes conscious consumption of garments, encouraging consumers to buy responsibly by considering the quality and origin of products. Additionally, sustainable fashion advocates for transparency and ethics regarding its practices and production processes (Solino et al., 2020), enabling consumers to make informed decisions about their purchases. Moreover, consumers are increasingly willing to pay a higher price when they perceive the added value of supporting responsible practices and contributing to environmental conservation, thus demonstrating their preference for sustainable products (Bilotte, 2021).

### ***History and Development: From Fast Fashion to Sustainable Fashion***

The concept of fast fashion originated in the 19th-century Industrial Revolution when the first efforts were made to cheapen production by leveraging the growing mass manufacturing of clothing (Godley, 1997).

However, the true rise of fast fashion occurred in the 1960s with the emergence of retail brands like Zara and H&M (Gutiérrez, 2023), brands known for producing fashion at low cost and in large quantities.

Before the 19th century, clothing manufacturing required manual and laborious processes to transform raw materials into garments. However, the Industrial Revolution brought revolutionary technologies such as the sewing machine (Sáenz, 2020) and the weaving machine, which allowed for mass production, thus making clothing more affordable and accessible to the general population. Throughout the decades of the 1970s and 1980s, technological advancements such as process automation, coupled with globalization, revolutionized the fashion industry, paving the way for the expansion of fast fashion (Barahona, 2018). By the late 1990s and early 2000s, fast fashion had solidified itself as a booming industry.

On the other hand, the origins of slow fashion are intimately linked to cultural, social, and economic changes that influenced how society began to approach fashion. The growing environmental awareness gave rise to the emergence of slow fashion, influenced by the "slow food" movement (Slow food, 2015), originated in Italy in the 1980s. This movement promoted conscious consumption of food, emphasizing the importance of quality, sustainability, and the origin of products. This philosophy served as inspiration for slow fashion (Fletcher, 2010), which advocates for a similar approach in clothing.

Subsequently, the increasing globalization, which on one hand has led to the expansion of fast fashion, also increased the demand for more ethical and sustainable options. This shift in preferences laid the groundwork for the emergence of sustainable fashion, which seeks to address the environmental and social challenges associated with the fast fashion industry. While its popularity has grown in recent times, the roots of sustainable fashion can be traced back to the 1960s, when consumers began to be aware of the environmental and social impact of the fashion industry, demanding a change in manufacturing practices (Jung & Jin, 2014). Although initially faced resistance, this began to change with campaigns against the use of animal fur in the 1980s and 1990s (Wadhawan & Ansari, 2018), generating a growing interest in ethical clothing towards the end of the 20th century and up to the present day.

## Methodology

For this study, a qualitative comparative approach was chosen to explore and contrast sustainable fashion and fast fashion models. This methodology allowed capturing perspectives from key actors and the underlying dynamics in both sectors of this industry. Central points of this comparison included economic context, use of fabrics and materials, garment quality, price variability, consumer trends, product lifecycle, labor conditions, and profitability, among other relevant aspects.

The process of collecting bibliographic information occurred in multiple stages to ensure comprehensive coverage of available sources. Initially, relevant keywords were defined such as "moda sustentable" (sustainable fashion), "sustainable fashion", "moda rápida" (fast fashion), "fast fashion", along with additional terms like "éticamente responsable" (ethically responsible), "producción ética" (ethical production), "impacto ambiental de la moda" (environmental impact of fashion), "consumo consciente" (conscious consumption), and others related to sustainable practices and the textile industry. Inclusion criteria encompassed studies, reports, and academic articles published in Spanish and English focusing on sustainable fashion practices and fast fashion. Non-academic sources, opinion pieces lacking empirical support, and publications lacking clear comparative data were excluded.

Searches were conducted in relevant academic databases within the field, such as Google Scholar, Scopus, and Web of Science. Keyword combinations were used to ensure capturing a wide range of relevant literature. All relevant references were recorded and organized to facilitate access and review. Titles and abstracts of search results were reviewed to determine relevance. Selected sources were read in detail and evaluated for validity, reliability, and relevance to the comparative study. Key data extraction was performed from each source, focusing on specific aspects mentioned in the study.

For data representation, detailed comparative tables were developed, structured as checklists with concise descriptions based on the collected data. This included initially identifying and defining critical categories for comparing sustainable fashion and fast fashion, systematically designing tables with columns representing the two fashion models (sustainable and fast) and rows representing comparison categories. Each cell contained concise descriptions based on the gathered data. The tables were carefully reviewed to ensure coherence in the presented information. Data validation was achieved through source triangulation, comparing findings from various studies and articles to maintain consistency and reliability, thereby mitigating biases and ensuring the analysis remained objective.

## Results and Discussion

### *Economic context*

The fast fashion industry has capitalized on the demand for affordable trend-driven garments, significantly transforming the economic landscape of the textile industry. One of the reasons behind the appeal of fast fashion is its accessible price compared to high-end fashion garments. This availability of clothing at low prices allows consumers to constantly renew their wardrobes without making a large investment, thereby

driving repeated and frequent consumption. This aspect is crucial to understand why people choose to spend a significant portion of their income on these types of products (Vázquez Cadena et al., 2020).

Furthermore, the emphasis on producing quickly and cost-effectively has led to the outsourcing of garment manufacturing to countries with lower labor costs. While this may result in lower prices for consumers, it also has negative economic consequences such as labor exploitation and job loss in developed countries.

On the other hand, sustainable fashion is proving that ethics and sustainability can coexist with economic success (Cordenons, & Verri, 2016). As consumers become more aware of the ethical and environmental implications of their purchasing decisions, sustainable brands are gaining ground, suggesting a shift in consumer preferences that could reshape market dynamics (Jacobs et al., 2018). Although sustainable garments may have a higher initial price than fast fashion options, their durability and superior quality often result in better long-term value. By investing in quality clothing designed to last (Aakko & Koskennurmi-Sivonen, 2013), consumers can reduce the frequency with which they need to replace their garments, saving money in the long run and reducing the need to spend a significant percentage of their income on fashion.

Additionally, sustainable fashion promotes more equitable and transparent economic practices throughout the supply chain. This includes ensuring fair wages and safe working conditions for workers at all stages of production, as well as reducing the outsourcing of manufacturing to countries with extremely low labor costs. By prioritizing ethics in manufacturing, sustainable fashion contributes to supporting local jobs and strengthening the economies of the communities where the garments are produced.

**Speed vs. Sustainability**

Fast fashion has experienced exponential growth due to its speed of production. However, this accelerated approach has led the clothing industry to produce at an unsustainable rate. Although fast fashion companies thrive on short cycles (Joy et al., 2012), the consequences of accelerated production are reflected in the massive waste of water resources, the use of harmful chemicals, the generation of CO2 emissions, and the production of garments that are practically disposable, contributing to the global waste problem (Pastrana & Almanza, 2021).

In contrast, sustainable fashion has emerged as a conscious response to the problems generated by fast fashion. Although it has progressed in integrating ethical and sustainable practices, such as the adoption of organic or recycled materials, it faces the challenge of balancing it with the speed of production. This is because the availability of materials and production costs sometimes hinder the growth of the industry and the ability to meet market demand quickly and efficiently.

**Table 1.**  
*Speed vs. Sustainability*

Aspect	Fast Fashion	Sustainable Fashion
Production pace	Fast	Variable
Resource wastage	High	Low
Use of harmful chemicals to health	✓	✗
Focus on integrating ethical and sustainable practices	✗	✓
Challenge of balancing sustainability with production speed	✓	✓

**Materials**

Fast fashion, driven by the need to keep costs low and follow market trends, often opts for unsustainable materials, leading to frequent use of synthetic fibers and opaque manufacturing processes, resulting in considerable environmental impact. On the other hand, sustainable fashion aims to use more eco-friendly materials, such as organic or recycled ones (Muthu, 2017; Peters et al., 2019). However, the transition to these materials faces challenges in terms of availability and costs. Innovation in this regard is essential for the sustainable development of fashion, as the current stagnation has had significant economic repercussions. The lack of innovation and pressure to meet a constantly growing market have led to the proliferation of highly profitable companies, often at the expense of environmental consequences (Marín & Monroy, 2013). In response, the apparel industry is attempting to incorporate sustainable fabrics not only as an added value but as a priority consideration to contribute to environmental conservation.

**Table 2.**  
*Materials*

Aspect	Fast Fashion	Sustainable Fashion
Cost of raw materials	Lower	Higher
Availability of raw materials	Higher	Lower
Frequent use of synthetic fibers	✓	×
Use of sustainable materials	×	✓
Use of organic or recycled fibers	×	✓

### *Quality vs. Price*

The increasing globalization has facilitated the expansion of fast fashion, a phenomenon in which retailers seek to quickly replicate runway trends. This approach has stimulated consumer demand for affordable fashion garments and leading retailers and brands to pressure their suppliers, often located in developing countries, to reduce manufacturing costs (Iwanow et al., 2005). The fashion industry is thus pressured to seek low costs, design flexibility, and a certain level of quality to remain profitable in an ever-evolving market (Bhardwaj & Fairhurst, 2010). Therefore, the main difference between fast fashion and sustainable fashion in terms of price lies in the perception of value and the costs associated with garment production. Fast fashion is distinguished by offering garments at relatively low prices, often resulting from the optimization of production processes and the use of lower-quality materials. This strategy enables fast fashion brands to maintain affordable prices for consumers.

On the other hand, sustainable fashion tends to have higher prices than fast fashion. This is due to various factors, such as the use of higher quality materials, the adoption of more ethical and sustainable production practices, and a smaller scale of production. Although prices may be higher, sustainable fashion is perceived as an investment due to the added value it offers in terms of durability, quality, and social and environmental responsibility, which can offset the initial cost with long-term benefits.

**Table 3.**  
*Quality vs. Price*

Aspect	Fast Fashion	Sustainable Fashion
Price of garments	Low	High
Quality of raw materials	Low	High
Perception of garment value	Low	High
Costs associated with production	Lower	Higher
Scale of production	Higher	Lower

### *Trends and Consumption*

Fashion, more than almost any other field of art and industry, is inextricably intertwined with time, finding its essence in current and fast-moving trends and its inspiration in emerging styles (Brewer, 2019). In this context, fast fashion is distinguished by its trend-based production approach, constantly churning out collections of garments that cater to consumers with the latest in fashion.

This constant pursuit of staying ahead of trends drives accelerated production, often at the expense of garment quality. While the fast fashion strategy makes it easier for consumers to purchase clothing more frequently, it also generates pressure to keep up with rapidly changing trends (Lang, Armstrong & Liu, 2016). This fosters impulsive consumption by offering garments in constant flux and incites consumers to buy excessively.

On the other hand, sustainable fashion focuses on durable and timeless trends that transcend fleeting fads, prioritizing quality over quantity. Sustainable fashion brands tend to have longer and more careful production cycles, which involve more meticulous planning and selective production. In this sense, it promotes the purchase of high-quality garments that last over time, fostering more conscious and responsible consumption by consumers based on durability and mindful investment.

**Table 4.**  
*Trends and Consumption*

Aspect	Fast Fashion	Sustainable Fashion
Production according to trends	✓	×
Continuous production of garment collections	✓	×
Emphasis on staying ahead of trends	✓	×
Sacrifice of quality for fashionability	✓	×
Encouragement of impulsive consumption	✓	×
Focus on durable and timeless trends	×	✓
Prioritization of quality over quantity	×	✓
Long and careful production cycles	×	✓
Meticulous planning and selective production	×	✓
Promotion of purchasing high-quality garments	×	✓
Encouragement of conscious and responsible consumption	×	✓

**Lifecycle**

Fast fashion and sustainable fashion differ significantly in terms of the durability of their garments. In fast fashion, the lifecycle of a garment begins with accelerated production aimed at following the latest trends. This approach often sacrifices quality in favor of profitability, using lower-quality materials and less rigorous production techniques. As a result, garments tend to have a shorter lifespan and are more prone to wear and tear.

In contrast, sustainable fashion focuses on the durability and quality of garments, using high-quality materials and careful manufacturing techniques to ensure that the garments can withstand the test of time. Sustainable fashion recognizes the importance of investing in quality garments with a long lifespan.

In general, sustainable fashion garments are designed to withstand the test of time, considering that fabrics have various environmental impacts throughout their lifecycle (Tojo, 2012). The aim is to obtain garments that can be worn for longer periods without losing their appearance or functionality. Additionally, the promotion of care practices, such as proper washing and maintenance, contributes to further prolonging their lifespan. Furthermore, sustainable fashion promotes recycling, reusing, and repairing garments as alternatives to disposal, thereby creating a longer lifecycle (Kamis et al., 2018; Ekström & Salomonson, 2014).

However, variety and novelty continue to be significant factors influencing consumer behavior and giving fast fashion an advantage. This is compounded using aggressive marketing strategies and attractive pricing by fast fashion, strategies designed to maintain consumer interest in their products. This approach can overshadow the consideration of durability and quality that sustainable fashion offers, emphasizing convenience and immediate accessibility over long-term sustainability.

**Table 5.**  
*Lifecycle*

Aspect	Fast Fashion	Sustainable Fashion
Durability of garments	Lower	Higher
Manufacturing techniques	Less rigorous	Careful
Focus on care	Lower	Priority
Environmental impact throughout the lifecycle	Higher	Lower
Longevity of garments	Short	Long
Promotes obsolescence	✓	×
Encourages reuse and recycling	×	✓

**Circularity and Environmental Awareness**

Circularity in fashion refers to an approach that aims to minimize waste and maximize the lifespan of garments, as well as promote reuse and recycling, instead of following the traditional linear model where products are manufactured, fulfill their lifespan, and then discarded (Blum, 2021). Fast fashion has contributed to the problem of textile waste due to the rapid obsolescence of garments (Ozdamar Ertekin &

Atik, 2015). This phenomenon generates a variety of physical contaminants, such as metal zippers and plastic buttons, commonly found in collected textile waste. Additionally, the mixture of various polymers used in garment manufacturing also contributes to this issue (Roos et al., 2019).

In general terms, fashion consumers are attracted to constant novelty, which implies that new products must be available frequently (Bruce & Daly, 2006). This dynamism generates impulsive purchases and leads to the generation of many discarded garments, which were barely used. Therefore, the absence of a circular approach has increased the negative environmental impact of the industry, and although sustainable fashion strives to promote circularity as part of its characteristics, it often faces difficulties in fully closing the lifecycle of garments.

This issue has become more evident to society, which is increasingly aware of the environmental impact generated by fast fashion (García-Huguet, 2021), and as environmental awareness grows and demand for more sustainable practices rises, fast fashion companies are starting to adopt more responsible measures. Some brands are implementing clothing recycling programs, collaborating with textile reuse organizations, and utilizing innovative technologies to reduce waste and improve circularity in their supply chains (Pastor Inchauste, 2018). The implementation of these measures by fashion companies is crucial for addressing the industry's negative environmental impact (Henninger et al., 2015).

### ***Working Conditions***

Exploitation in fast fashion is a significant concern due to pressures to reduce costs, often resulting in precarious working conditions and low wages, especially in factories located in developing countries. A large portion of garment production, in terms of labor, takes place in developing economies (Morris & Barnes, 2009), distancing the end consumer from producers and complicating awareness of related issues. Additionally, this industry also faces the challenge of clandestine factories (Rudell, 2006), which operate outside the law, under conditions including poor labor rights, low wages, child labor, and modern slavery (Mair et al., 2016; Peake & Kenner, 2020).

On the other hand, while labor ethics are a priority for sustainable fashion, maintaining competitive costs without compromising ethical principles remains a constant challenge. Ensuring fair wages and adequate working conditions is crucial, but it can impact competitiveness in a market driven by speed.

**Table 6.**

### ***Working Conditions***

<b>Aspect</b>	<b>Fast Fashion</b>	<b>Sustainable Fashion</b>
Fair labor conditions	x	✓
Compliance with labor laws	x	✓
Child labor	✓	x
Sacrifice of ethics for profitability	✓	x

### ***Profitability***

The fast fashion business model prioritizes maximizing profit margins through reducing production costs, leading to the use of cheaper materials and efficient but less sustainable manufacturing processes. This allows fast fashion products to be sold at lower prices, which can attract price-sensitive consumer segments. However, this strategy may be affected by fierce market competition and a perception of lower quality among consumers. On the other hand, in sustainable fashion, production costs are often higher due to the use of organic, recycled, or fair-trade materials, as well as more environmentally and friendly production processes. This results in higher selling prices, but it can also lead to a perception of greater value among consumers as they recognize the positive impact on the environment and communities. While profit margins may be more stable in the long run in sustainable fashion, the challenge lies in finding the right balance between profitability and long-term sustainability.

### ***Synergy Between Fast Fashion and Sustainable Fashion***

As environmental awareness grows, and the consumption model of fast fashion evolves, opportunities for convergence with sustainable fashion are emerging. The widespread adoption of sustainable practices in

fast fashion and continuous improvement in the responsiveness of sustainable fashion could pave the way for a more balanced model. On one hand, fast fashion could benefit from the integration of more sustainable materials and processes into its supply chain, which would contribute to reducing its environmental impact and improving its brand image among increasingly conscious consumers. On the other hand, sustainable fashion could learn from the agility and efficiency of fast fashion in terms of production and distribution, allowing it to respond more quickly to market demands without compromising its ethical and environmental principles. Consumer engagement will be key in this transformation process towards a more conscious and responsible textile industry.

In this sense, innovation plays a fundamental role in the convergence between both trends. The development of new sustainable materials, more efficient work methodologies, and environmentally friendly production processes can open new possibilities for the fashion industry.

## Conclusions

In this work, an analysis has been carried out that examines the distinctive differences between sustainable fashion and fast fashion, highlighting the growing importance of sustainability in the fashion industry. As society moves towards a more conscious and ethical future, understanding how these two trends influence fashion becomes essential for charting the course towards a more sustainable and equitable industry.

While sustainable fashion has emerged as an ethically and environmentally responsible response, its ability to overcome the speed and accessibility of fast fashion remains an area of development. At the same time, the integration of sustainable practices in fast fashion could offer a path towards a future where both trends can integrate into a new trend, effectively addressing the environmental issues inherent in the textile industry in garments.

The challenge lies in finding a balance where fashion can remain expressive, innovative, and profitable while embracing practices that respect the environment and society. Ultimately, it is through collaboration, innovation, and commitment to sustainability that we can positively transform the fashion industry.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.2>

How to Cite:

Nurpeisova, A., Niyazbekova, S., Zhangaliyeva, Y., Tovma, N., Yessymkhanova, Z., & Tashtamirov, M. (2024). Responsible consumption for a green economy in Kazakhstan. *Amazonia Investiga*, 13(77), 20-41. <https://doi.org/10.34069/AI/2024.77.05.2>

## Responsible consumption for a green economy in Kazakhstan

### Consumo responsable para una economía verde en Kazajstán

Received: March 20, 2024

Accepted: May 4, 2024

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#### Abstract

Currently, with population growth, economic development and the constant improvement of people's living standards, the amount of garbage continues to increase, the composition of garbage has also undergone major changes, and the harm from garbage is becoming more serious. In Kazakhstan, there is a danger to health due to environmental degradation and misuse of waste. To analyze the problems and satisfaction of the population with the waste management system implemented by local authorities in cities, a survey was conducted in two cities of Kazakhstan - Astana and Almaty. For this study, a sample of 978 respondents from each randomly selected city was selected, which included an equal number of respondents. After the survey, we found out that residents of Astana are more satisfied with the waste management system for each category than residents of Almaty. The study examined issues related to the formation of solid waste in

#### Resumen

Actualmente, con el crecimiento de la población, el desarrollo económico y la mejora constante del nivel de vida de las personas, la cantidad de basura continúa aumentando, la composición de la basura también ha sufrido cambios importantes y el daño de la basura se está volviendo más grave. En Kazajstán, existe un peligro para la salud debido a la degradación ambiental y el mal uso de los desechos. Para analizar los problemas y la satisfacción de la población con el sistema de gestión de residuos implementado por las autoridades locales en las ciudades, se realizó una encuesta en dos ciudades de Kazajstán: Astana y Almaty. Para este estudio, se seleccionó una muestra de 978 encuestados de cada ciudad seleccionada al azar, que incluía un número igual de encuestados. Después de la encuesta, descubrimos que los residentes de Astana están más satisfechos con el sistema de gestión de residuos para cada categoría que los residentes de

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Kazakhstan. As a result of this survey, it turned out that 46.5% of the surveyed residents do not sort the discarded garbage. Residents are concerned about the shortage of garbage collection containers and recycling containers, and residents are asking for an increase in the number of garbage collection containers. The public is well aware of the types of household waste. Most citizens are aware of the importance of the problem of plastic waste and are trying to reduce the size of such garbage, as well as trying to reduce the size of this waste, but a significant part of the residents still do nothing about it. Based on the conducted research, recommendations are given on the application of a set of measures aimed at effective waste management in the context of the transition to the principles of the "green economy" and the achievement of sustainable development goals in Kazakhstan.

**Keywords:** solid household waste, population, environment, recycling, green economy, waste hazard class, environmental safety, environmental policy.

## Introduction

Waste management plays a key role in the transition from a linear economy to a cyclical economy. Efficient waste management can save money in the long run, and the introduction of advanced waste management solutions requires an initial financial investment.

The widespread use of synthetic plastics and their consumption create environmental problems. Agricultural waste is the richest natural source of carbon in terms of a closed-loop economy

Uncontrolled accumulation of garbage is harmful to health and can lead to diseases transmitted by rodents and insects. A lot of attention is paid to the closed-cycle economy in the European Union, where in 2020 the Action Plan for the Closed-Cycle Economy (European Union, 2020) was adopted, confirming the intention to get rid of household waste by 2030.

Waste disposal is one of the most important problems in the field of environmental management, and irrational waste management leads to various environmental problems. Integration into a waste management system is essential, so an important recycling method is needed to create a good and stable waste management system.

Effective waste management reduces the need for natural resources, increases environmental efficiency in the field of environmental protection and waste management. Waste management can be carried out using intelligent systems that ensure efficient recycling. An intelligent waste management system can solve complex waste management problems by reducing human intervention.

The economy can benefit from the formalization and improvement of these processes in integrated systems. Improving waste management systems can improve the condition of cities, the local economy, the value of real estate and the quality of life. There is no standardized way to easily calculate the size of waste, because the context of global waste management varies greatly – for example, the composition of waste, climate, economic and social consequences.

Almaty. El estudio examinó cuestiones relacionadas con la formación de desechos sólidos en Kazajstán. Como resultado de esta encuesta, resultó que el 46.5% de los residentes encuestados no clasifican la basura desechada. Los residentes están preocupados por la escasez de contenedores de recolección de basura y contenedores de reciclaje, y los residentes piden un aumento en la cantidad de contenedores de recolección de basura. El público conoce bien los tipos de residuos domésticos. La mayoría de los ciudadanos son conscientes de la importancia del problema de los desechos plásticos y están tratando de reducir el tamaño de dicha basura, así como de tratar de reducir el tamaño de estos desechos, pero una parte significativa de los residentes aún no hace nada al respecto. Sobre la base de la investigación realizada, se dan recomendaciones sobre la aplicación de un conjunto de medidas destinadas a la gestión eficaz de los residuos en el contexto de la transición a los principios de la "economía verde" y el logro de los objetivos de desarrollo sostenible en Kazajstán.

**Palabras clave:** residuos sólidos domésticos, población, medio ambiente, reciclaje, economía verde, clase de riesgo de residuos, seguridad ambiental, política ambiental.

To achieve this goal, the article describes the following tasks:

- 1) Consideration of waste classification issues in Kazakhstan;
- 2) Study of waste management problems in Kazakhstan;
- 3) A social survey on solid waste management was conducted;
- 4) Recommendations are given on the application of a set of measures aimed at effective waste management in the context of the transition to the principles of the "green economy" and the achievement of sustainable development goals in Kazakhstan.

### Literature review

The efficiency of management in the field of municipal waste management is significantly increased by regulating the flow of household waste in the non-residential sector of the city (commercial waste) and immiscible flows of household waste in the residential sector (MacArthur, 2013; Silvestri et al., 2023).

Municipal solid waste is a heterogeneous mixture of complex morphological composition with valuable components of resources and raw materials, which are a potential source of energy. Effective municipal waste management requires scientific concepts based on municipal waste collection, disposal, recycling and recycling systems in urban areas (Zhou, 2009; Sankar et al., 2021; Saha et al., 2018). This concept is based on a more advanced waste management model and solves the problem of municipal solid waste with a special focus on the use of reserves to increase the economic efficiency of the municipal sector of the city. At all stages of waste management, waste management systems should be a combination of technical operations to separate waste into separate fractions and components, after which they are optimally processed (Zhou et al., 2015). The main direction of solving the problem of household waste is to optimize the collection system and include it in industrial processing based on resource-intensive technologies with low waste content to reduce the negative impact on the environment. In the integrated planning of solid waste recycling, the integration process takes place sequentially (and is based on sampling) with changes in the qualitative and quantitative composition of solid waste (Ferronato et al., 2017). At the same time, not only the problem of recycling many components of household waste has been largely solved, but also the problem of recycling hazardous household waste and ballast components, optimal preparation of some fractions of household waste components for further processing (Bala, 2012). Integrated municipal waste management, based on a proven approach to solving the problem of solid waste, takes into account all technological aspects of waste management in relation to each other (ecology, efficiency and resource savings) (Nurpeisova, 2022; Niyazbekova et al., 2023; Burkaltseva et al., 2022a; Petrova et al., 2022). Based on the real economic situation in the country, it is advisable to solve the problem of solid household waste in stages (Besen, 2006; Szpilko, 2023). To ensure the correct choice of technical and economic policy in the field of municipal waste management, it is necessary to objectively assess the state of the waste management problem for a certain period of time, taking into account the environmental situation in the region and the shortcomings of the existing municipal waste management system.

In general, when evaluating waste management systems, only the costs and revenues associated with the operation and maintenance of wastewater treatment plants are taken into account (Al-Salem, 2014). This may lead to a shift to alternatives such as recycling, which may be more expensive than landfilling, from a purely economic point of view (Nahman, 2011). However, if we include external costs and revenues or impacts related to environmental and social aspects, the results can change and encourage the introduction of alternatives such as recycling, which will bring huge social and environmental benefits. Recycling means reducing the consumption of raw materials, which significantly saves energy and contributes to environmental protection, as well as reducing waste sent to landfills, which increases their service life (Risch, 1978; Ellen MacArthur Foundation, 2016).

With rapid economic growth and massive urbanization, the types and volumes of municipal solid waste continue to increase, and many cities are already faced with the problem of "garbage pollution". Municipal solid waste not only seriously pollutes the soil, water and atmosphere. It also threatens people's health, affects the urban landscape and damages the city's image. The advantages and disadvantages of treatment technologies used in some developed countries are being assessed as driving innovation in new solid waste management methods and ideas (Xiumin et al., 2010). Waste that affects the entire world, including local and global political disputes, assessments of economic and moral values, and concerns about environmental pollution and crises (Boscagli, 2014). Improper waste management creates significant environmental risks, adversely affecting soil, air and water quality. These issues need to be addressed immediately to minimize

the impact of solid waste on public health and ecosystems (Moser, 2002). The linear economy of modern society cannot adequately solve some problems of sustainable development (for example, resource depletion, waste disposal, etc.). Therefore, the scientific community and politicians attach great importance to the implementation of the concepts of a closed-loop economy (Reno, 2014). Improper waste management creates significant environmental risks, having a harmful effect on the quality of soil, air and water. These problems need to be addressed immediately in order to minimize the impact of solid waste on public health and ecosystems. Suboptimal management of medical waste is a serious problem that can be effectively solved by implementing Internet of Things (IoT) solutions to improve waste monitoring and disposal processes (Fazio et al., 2012; Balakrishna, 2012).

**Table 1.**  
*Waste management and green economy concepts*

Scientists	Keywords	Point of view
Liu et al., (2018)	Waste, Circular Economy, Green Economy	Achieving the Sustainable Development Goals (Liu et al., 2018) requires the collective hard work of researchers, decision makers, and the local community to implement an innovative approach that helps reduce poverty and save resources.
Brydges (2021).	Waste, Circular Economy, Green Economy	Cyclical economics and waste management play an important role in the modern world, especially in the context of sustainable development and combating climate change. A cyclical economy is a model in which resources are used as efficiently as possible and waste is minimized. The main idea is to create closed cycles of consumption and production in order to avoid inefficient use of resources and accumulation of waste.
Morseletto (2020).	Waste, Circular Economy, Green Economy	Many countries and companies are increasingly adhering to the principles of a cyclical economy, implementing various waste management programs, promoting the recycling of materials and developing environmentally friendly technologies and products. These efforts contribute to the conservation of natural resources, the reduction of greenhouse gas emissions and the creation of a more sustainable economy.
Geissdoerfer et al., (2017)	Waste, Circular Economy, Green Economy	One of the basic principles of a cyclical economy is the principle of prevention -reduction -of recycling. This means maximum prevention of waste generation, minimization of their quantity and harmful effects on the environment, as well as maximum reuse and recycling of waste.
Zhu et al., (2019)	Waste, Circular Economy, Green Economy	In a cyclical economy, waste is a resource that can be reused to produce new goods and materials. This reduces the consumption of natural resources, reduces the amount of waste thrown into landfills, and reduces the negative impact on the environment.
Song et al., (2020)	Waste management, ICT, Internet of things, smart city	In order to meet the needs of various business management tasks related to the supervision of hazardous waste, the Internet of Things technology is used in the production, transportation and disposal of hazardous waste. Applied research, development of an intelligent hazardous waste control platform based on Internet of Things technology and creation of a portal for management departments, waste production enterprises and transport.
Jino Ramson et al., (2020)	Waste management, ICT, Internet of things, smart city	The integration of the Internet of Things into the solid industrial waste industry contributes to the full control of the life cycle of solid industrial waste and the implementation of improved management, and also contributes to the transformation of low-value-added products into solid industrial waste; added value; it contributes to the increase of solid industrial waste resources.
Yang & Wang, (2021)	Waste management, ICT, Internet of things, smart city	The use of the Internet of Things in the solid industrial waste production chain mainly includes three links: recovery, recycling and disposal: (a) combining the Internet of Things and waste recycling makes recycling work reasonable and efficient; (b) combining the Internet of Things and recycling links will expand market channels for integrated solid waste disposal and will contribute to cluster development of the solid waste industry; (c) combining the Internet of Things and recycling channels will allow you to obtain expensive products, intensify management and precise control over the integrated disposal of solid industrial waste.
Theodoros (2020)	Waste management, ICT, Internet of things, smart city	The creation of an environmental monitoring network "in real time, accurately, comprehensively and in general" has become an effective tool for addressing issues of supervision of the solid industrial waste disposal industry.
Ramson et al., (2021)	Waste management, ICT, Internet of things, smart city	Air pollution is a serious problem, especially in large cities, and poses a serious threat to both health and climate. Using IoT sensors, cities and private organizations can collect huge amounts of information to identify the largest sources of pollution and warn residents when pollution exceeds acceptable levels.

Vishnu et al., (2019)	Waste management, ICT, Internet of things, smart city	The generally accepted rules for ensuring a more sustainable waste management system is the principle of a hierarchy of waste management methods, in which priority is given to waste prevention (prevention) and recycling, rather than disposal.
Akaateba & Yakubu (2013)	Waste management, waste management service, meeting the needs of the public	The link between public satisfaction and waste management is an important aspect for ensuring the quality of life and well-being of society. Effective waste management can have a direct impact on public satisfaction for several reasons: environmental protection; health; economic benefits.
Chandra-Majumder & Razaul-Karim, (2012).	Waste management, waste management service, meeting the needs of the public	Effective waste management has a direct impact on the quality of life and satisfaction of the population, therefore, the development of appropriate strategies and programs in this area is a key element in ensuring the well-being of society..
Durdyev et al., (2018)	Waste management, waste management service, meeting the needs of the public	By collecting data on complaints and opinions of residents through special portals or referral departments and conducting comprehensive sociological research, including questions about garbage collection as one of the aspects of quality of life, it is possible to more accurately determine the level of satisfaction of the population with garbage collection and identify potential problem areas for further improvement of the quality of services provided. The analysis of these data helps to determine the level of satisfaction of the population.
Khanom et al., (2015)	Waste management, waste management service, meeting the needs of the public	The confidence and responsiveness of the population have a positive and significant impact on public satisfaction. However, reliability, empathy and tangibility do not have a significant impact. As for the guarantee, the cleanliness of the sidewalks and the cleanliness of the paths are indicators that have a significant impact on this aspect.

After table 1, you can see the various thoughts of the authors who studied the concepts of waste management and the green economy. These definitions can be roughly divided into three categories: (1) Cyclical economy and green economy. The green economy emphasizes the need to reduce the negative impact of human economic activity on the environment and gives priority not to economic growth at any cost, but to sustainable development with minimal environmental risks. Proponents of this trend view the economy as a dependent component of the natural environment in which it exists and of which it is a part. (2) Waste management and the Internet of Things. Waste management and the Internet of Things (IoT) can be linked in the context of creating more efficient and innovative waste collection, recycling and disposal systems. Here are some ways that IoT can improve waste management: smart waste containers; waste monitoring and classification; optimization of recycling processes; energy management; waste lifecycle tracking. The use of IoT technologies in waste management can significantly improve the efficiency, environmental friendliness and innovation of waste collection, recycling and disposal processes. (3) Waste management and public satisfaction. Effective waste management has a direct impact on the quality of life and satisfaction of the population, therefore, the development of appropriate strategies and programs in this area is an important factor in ensuring the well-being of society. Increasing public participation is an unavoidable requirement to promote the development of a green economy.

## Methodology

This study is based on the use of theoretical and empirical research methods. The authors analyzed the scientific and practical literature, and the main subject of the study (energy, cycling and waste management) The issues of waste management in Kazakhstan are considered.

To analyze the problems and satisfaction of the population with regard to the waste management system carried out by local governments in cities, a descriptive study was carried out on two cities of Kazakhstan, Astana (more than 1.5 million inhabitants) and Almaty (more than 2.5 million inhabitants), which were selected as an area of study. Random respondents were selected, which included a different number of respondents from each city. A sample of 978 respondents from each randomly selected city was selected for this study and included an equal number of respondents. To collect responses, a structured survey was compiled, the survey was conducted in a google form, and a link was sent to the respondents. Respondents answered the survey at a time convenient for them.

Public opinion polls on solid waste management were conducted. For this purpose, a special questionnaire was created with questions and suggested answers on solid waste management. The survey was conducted using questionnaires docs.google.com where 20 questions concerning the ecology of the city were individually asked. The study was conducted for 2 months (from August to October 2023). 980 residents of Astana over the age of 18 from 4 districts of the city were randomly interviewed: Yesilsky, Saryarka,

Almaty, Baikonur. As a result of the survey, we received feedback on waste management, as well as information from the public about waste management and recycling.

Currently, Kazakhstan is fulfilling 17 Sustainable Development Goals proposed by the United Nations in 2015, as the results of the activities of departments and strategic plans for industrial development correspond to the main goals of sustainable development. The article presents six of the 17 Sustainable Development Goals (7, 9, 11, 12, 13 17) In the case of the "green economy", it has been established that it is directly or indirectly related to the issues of effective waste management in Kazakhstan.

**Results and discussion**

*The problem of waste management in Kazakhstan*

Based on information from the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan (EGOV, 2023), last year in 2023, about 4.1 million tons of municipal waste were generated in the country, of which 1 million tons were buried in landfills. Last year, space monitoring revealed 5,533 unauthorized landfills in only 39 large settlements, which indicates that the actual volume of waste far exceeds the volume taken into account. The morphological composition of municipal waste is about 70% of useful fractions, namely 16% plastic, 11% waste paper, 9% glass, 37% organic waste, 27% others.

In 2023, thanks to observations from space, more than 5.5 thousand illegal landfills were discovered in Kazakhstan. Of the 3,016 landfills, only 624 (or 21 percent) met environmental and sanitary standards. According to official data, the most problematic regions, where the least number of landfills that meet the standards were found, were the Pavlodar, North Kazakhstan and Abai regions. At the same time, the Ministry of Ecology claims that landfills in Astana, Shymkent, Turkestan and Zhambyl regions are recognized as fully compliant with environmental indicators.

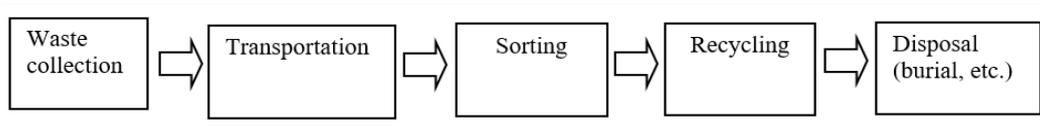
In Kazakhstan, only a limited amount of waste is recycled: mainly plastic, paper and glass. Not all items in these categories are reusable. For example, recycling usually requires only transparent glass, and plastic should not contain impurities, since its purification requires significant resources. Not all waste paper is recyclable. Textiles, medical waste, batteries, as well as other hazardous waste, as a rule, remain unused.

Disposal of hazardous and medical waste is not fully controlled by the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan. Budgetary funds for the processing and disposal of hazardous and medical waste are being used to a greater extent, but the technologies used in their processing do not comply with current standards and regulations.

Therefore, in modern conditions, environmental protection from waste pollution or the development of cost-effective solutions have become an urgent necessity.

The removal, storage and processing of solid household waste (SHW) is a specific and socially important area of municipal services. The sphere of solid waste circulation is an example of a public good, which has all the signs of public goods: indivisibility, lack of competition in consumption and non-appropriateness. The environmental safety of citizens directly depends on the results of the organization of the treatment of solid waste. Therefore, this area is under the jurisdiction of the state. Solid waste management includes issues such as strategic planning, public participation, and financial management. The many stakeholders involved in the collection and recycling of municipal solid waste must develop and establish reliable programs that take into account political, institutional, social and technical aspects (Nurpeisova et al., 2020), (Thakker & Narayanamoorthy, 2015), (Niyazbekova et al., 2022).

The waste management process includes several interrelated stages (Figure 1).



**Figure 1.** Waste management process.

Waste collection is carried out by homeowners, housing and communal services management companies, HOA, private enterprises. Transportation of solid waste is the removal of garbage from waste collection sites to the sorting station. Sorting of solid waste is carried out at waste sorting stations. Solid waste is processed at waste processing plants. Waste disposal takes place at the landfill.

As a result of daily human activity, a large amount of solid household waste (SHW) is generated. To maintain a normal ecological situation in the city, it is necessary to take out household garbage in time. Garbage collection that remains after production takes place in storage containers specially designed for this purpose. The main way to dispose of industrial waste is their removal to special landfills. In addition, a small part of industrial waste is burned in high-temperature furnaces (Yessymkhanova et al., 2021; Rudyk et al., 2022; Niyazbekova & Nazarenko, 2018; Niyazbekova et al., 2019).

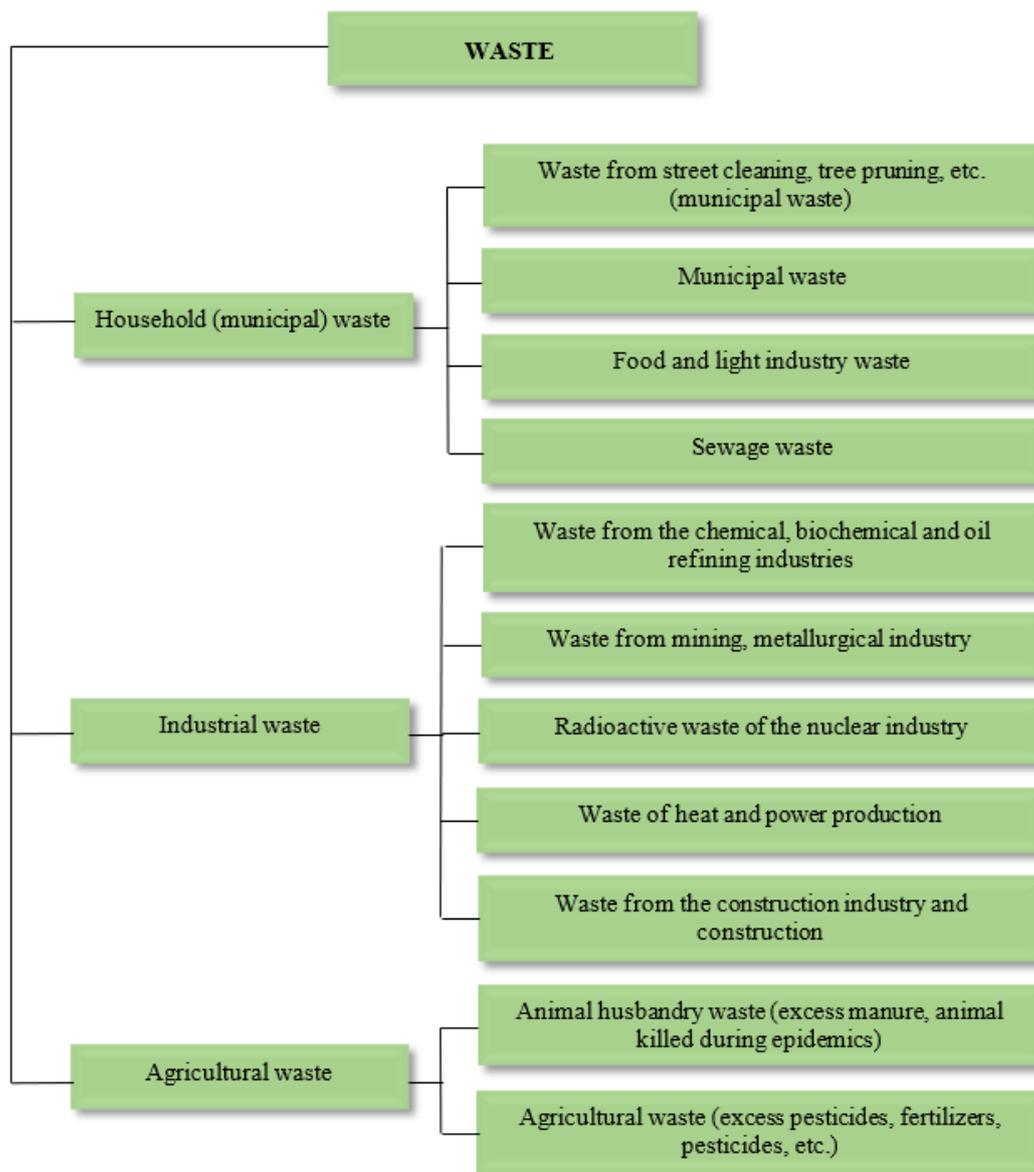
In Kazakhstan, only a quarter of solid household waste is sorted and processed. A lot of waste is generated every day, which must be disposed of in various ways. The Ministry of Ecology and Natural Resources of the Republic of Kazakhstan regularly collects statistical data on the amount of each type of waste. In Kazakhstan, waste is classified as industrial, municipal and agricultural (Figure 2) and is divided into classes according to the degree of harmful effects on the environment (Table 2).

**Table 2.**

*Distribution of waste hazard by class according to the degree of harmful impact on the environment*

Waste hazard class	Indicator of the degree of danger, $K^*$	The nature of ecosystem destruction
Class A – non-hazardous waste	$K \leq 10^4$	The ecosystem is not disturbed
Class B – epidemiologically hazardous waste	$10 \leq K \leq 10^2$	Moderately disturbed
Class B – extremely epidemiologically hazardous waste	$10^2 \leq K \leq 10^3$	Moderately disturbed
class D – toxicologically hazardous waste	$10^3 \leq K \leq 10^4$	Severely disrupted
class D – radioactive waste	$10^4 < K \leq 10^6$	Irreversibly broken
$K_i = \frac{C_i}{P_i}$ , $K_i$ – hazard rating of the component; $C_i$ – concentration of a single component; $P_i$ – hazard factor of a single component; $K_i = K_1 + K_2 + \dots + K_n$ .		

Source: Created by the authors based on public data



**Figure 2.** Classification of waste by origin.  
Source: Created by the authors based on public data.

In total, there are 3,292 (unofficial even more) landfills of solid household waste in Kazakhstan, of which the number of landfills that meet the standards is 601 (18.26%). This is a very big environmental problem for Kazakhstan (Table 3).

**Table 3.**  
*Number of solid waste landfills in Kazakhstan in 2022*

Rating	Region	Region Number of solid waste landfills, units	Number of landfills that meet the standards, units	Share of landfills that meet the standards, %
	Total for the Republic of Kazakhstan	3292	601	18,26
1	Astana	1	1	100
2	Shymkent	1	1	100
3	Zhambyl region	159	159	100
4	Turkestan region	163	150	92,02
5	Kostanay region	266	111	41,73
6	Mangistau region	24	8	33,33
7	Atyrau region	82	9	10,98

8	Akmola region	130	26	20,00
9	Karaganda region	202	40	19,80
10	East Kazakhstan region	430	26	6,05
11	North Kazakhstan region	458	17	3,71
12	Aktobe region	323	12	3,72
13	Western Kazakhstan region	208	2	0,96
14	Kyzylorda region	145	4	2,76
15	Almaty region	313	13	4,15
16	Pavlodar region	336	5	1,49
17	Almaty	0	exported to Almaty region	

Based on information from the Ministry of Ecology, Geology and Natural Resources of the Republic of Kazakhstan (EGOV, 2023).

Source: Created by the authors based on public data.

Waste in Kazakhstan is a serious problem defined by uncoordinated development. Solid waste management is aimed at recycling, but the problem of organizing the modern organization of landfills is largely not solved properly. Waste recycling enterprises do not get the expected results in waste distribution.

The circular economy emphasizes resource intensification and reuse, including increasing resource and energy efficiency, recycling materials, etc. The active development of a circular economy promotes the intensive use of resource-saving technologies and the creation of an industrial system for resource utilization. This is of great importance in ensuring the safety of national resources, promoting the achievement of carbon peaking and carbon neutrality, and helping to build an ecological civilization.

In the process of creating an industrial resource recycling system, waste recycling is an important part of it. The recycling market has been developing in Kazakhstan for decades, but it is still at a relatively early stage of development, and it is urgently necessary to increase the level of use of industry resources. The Closed-loop Economy offers a solution for the transition from the traditional linear economy: to take full advantage of the recycling of resources in order to gradually separate economic activity from the consumption of limited resources.

The population needs to treat the environment, society with a certain responsibility to future generations (Kaushal, Varghese, & Chabukdhara, 2012). The negative consequences of poor-quality waste treatment affect future generations (Zikri, 2012).

#### *Analysis of problems and satisfaction of the population regarding the waste management system*

To analyze the problems and satisfaction of the population with regard to the waste management system carried out by local governments in cities, a descriptive study was carried out on two cities of Kazakhstan, Astana (more than 1.5 million inhabitants) and Almaty (more than 2.5 million inhabitants), which were selected as an area of study. Random respondents were selected, which included a different number of respondents from each city. A sample of 978 respondents from each randomly selected city was selected for this study and included an equal number of respondents. To collect responses, a structured survey was compiled, the survey was conducted in a google form, and a link was sent to the respondents. Respondents answered the survey at a time convenient for them.

Almost half of the respondents were men, with an average age of 36. The respondents participating in the selection have higher education (69.2%, Astana), (67.5%, Almaty). The remaining 8.6% (Astana), 1.0% (Almaty) have graduated from secondary school, and the remaining 22.2% (Astana), 31.5% (Almaty) have incomplete higher education (Table 4).

**Table 4.**  
*Characteristics of the respondents*

Parameters		Astana		Almaty	
		Repeatability	Percentage (%)	Repeatability	Percentage (%)
Gender	Male	561	57.3	478	48.9
	Female	417	42.7	500	51.1
Age	from 20 to 30 years old	312	31.9	282	28.8
	from 31 to 40 years old	339	34.6	292	29.8
	from 41 to 50 years old	269	27.5	301	31.0
	from 51 to 60 years old	58	6.0	103	10.4
The level of education	Middle school	84	8.6	10	1.0
	Incomplete higher education	217	22.2	308	31.5
	Higher education	677	69.2	660	67.5

In the course of the study, we tried to determine the difference in public satisfaction with the waste management system between the cities of Astana and Almaty. Respondents were asked to rate their satisfaction with the waste management system on a 5-step Likert scale from 1 (very satisfied) to 5 (not very satisfied). Satisfaction with the waste management system developed in this study is measured by nine aspects: the frequency of waste collection, the distance of the landfill from the city, waste management, cleanliness of the territory/yard, waste collection fees, used vehicle and equipment, seminars/discussions/information on cleanliness, staff behavior, response to a complaint.

**Results**

Maintaining cleanliness in the city in order to create an effective waste management system is the task not only of local authorities, but also of the local population. In this study, residents' satisfaction with the role of local authorities in Waste Management was assessed, the main cities of Astana and Almaty were selected to determine residents' satisfaction with urban cleanliness and determine the best city among them.

To assess the effectiveness of the services provided, a survey was conducted using a structured questionnaire using various parameters such as the frequency of waste collection, the remoteness of the landfill, the cleanliness of the territory/yard, the fee for waste collection, the vehicle and equipment used, seminars held, discussions/ cleanliness of information, staff behavior, response to a complaint.

(a) *Frequency analysis*

**Table 5.**  
*Frequency analysis of Astana and Almaty respondents*

Parameters	Astana					Almaty				
	V.D	D	N	S	V.S	V.D	D	N	S	V.S
Waste collection frequency	30(3)	293(30)	0 (0)	538(55)	117(12)	127(13)	313(32)	0 (0)	333(34)	205(21)
The distance of the polygon	235(24)	274(28)	29(3)	391(40)	49(5)	205(21)	479(49)	49(5)	225(23)	20(2)
Waste management	49(5)	293(30)	39(4)	548(56)	49(5)	98(10)	596(61)	68(7)	195(20)	21(2)
Cleanliness of the territory / yard	49(5)	343(35)	0(0)	518(53)	68(7)	136(14)	489(50)	0(0)	294(30)	59(6)
Waste collection fee	147(15)	195(20)	39(4)	548(56)	49(5)	98(10)	596(61)	68(7)	195(20)	21(2)
The vehicle and equipment used	49(5)	323(33)	39(4)	518(53)	49(5)	117(12)	440(45)	68(7)	294(30)	59(6)
Seminars / discussions/ information on cleanliness	49(5)	127(13)	626(64)	147(15)	29(3)	20(2)	147(15)	557(57)	195(20)	59(6)
Staff behavior	49(5)	343(35)	98(10)	421(43)	68(7)	68(7)	489(50)	68(7)	294(30)	59(6)
Response to the complaint	49(5)	342(35)	49(5)	489(50)	49(5)	68(7)	489(50)	0(0)	353(36)	68(7)

Note: V.D.-Very Discontent, D.- Discontent, N.-Neutral, S.- Satisfied, V.S.-Very Satisfied

Table 5 presents an analysis of the entire questionnaire in the form of a comparison of responses received from both cities. It was found that 30% of respondents from Astana and 32% of respondents from Almaty were dissatisfied, and 55% of respondents from Astana and 34% of respondents from Almaty were satisfied with the frequency of waste collection. In this category, none of the respondents remained neutral.

28% of respondents from Astana were dissatisfied with the nearby landfill set up by city local governments to collect secondary waste, while 49% of respondents from Almaty were dissatisfied for the same reason. 30% of respondents from Astana and 61% of respondents from Almaty are dissatisfied with the way the city government handles waste; very few residents of Astana (4%) and Almaty (7%) remained neutral in this section.

33% of respondents from Astana and 45% of respondents from Almaty were dissatisfied with the vehicle and equipment used for waste collection, while 53% of respondents from Astana and 30% of respondents from Almaty were satisfied for the same reason. Very few residents of Astana (4%) and Almaty (7%) remained neutral in this section.

53% of respondents from Astana and 30% of respondents from Almaty are satisfied with the cleanliness in their locality imposed by the municipality, while 35% of Astana residents and 50% of Almaty residents were dissatisfied with this. 43% of respondents from Astana and 30% of respondents from Almaty are satisfied with the accuracy of the brigade and the behavior of a member of the brigade arriving to clean up garbage. While 35% of respondents from Astana and 50% of respondents from Almaty were dissatisfied with this. Respondents from Astana (10%) and Almaty (7%) were behaviorally neutral.

Only 50% of Astana respondents and 36% of Almaty residents were satisfied with the way their complaints were answered, while 35% of Astana residents and 50% of Almaty residents felt that their complaints were not properly responded to, so they were unhappy.

Accordingly, 20% and 61% of respondents from Astana and Almaty were dissatisfied with the fee charged to users for waste removal. 56% of respondents from Astana were satisfied, 20% of respondents from Almaty were satisfied with the amount collected from them. The majority of respondents, namely 64% from Astana and 57% from Almaty, remained neutral towards the seminar on cleanliness. The respondents were dissatisfied with the monitoring and verification of sanitary conditions.

*b) independent samples t-test.*

To assess the level of population satisfaction with the waste management system in the cities of Astana and Almaty, we used the t-testing method for an independent sample. As can be seen from Table 6, Astana residents are more satisfied with each category of waste management system than Almaty residents. In addition, the differences between the two groups (Astana and Almaty) are statistically significant on some issues related to population satisfaction with the waste management system.

**Table 6.**  
*t-criterion for independent samples*

The degree of public satisfaction with the waste management system		Astana	Almaty	t-value
Waste collection frequency	The average value	3.21	2.94	0.0013
	Standard deviation	0.83	0.69	
The distance of the polygon	The average value	2.58	3.13	-2.039***
	Standard deviation	0.71	0.68	
Waste management	The average value	3.78	2.34	-3.524***
	Standard deviation	0.88	0.63	
Cleanliness of the territory / yard	The average value	3.50	3.24	0.0623*
	Standard deviation	0.59	0.57	
Waste collection fee	The average value	4.67	3.66	-6.287***
	Standard deviation	0.69	0.68	
The vehicle and equipment used	The average value	1.52	1.58	0.0001
	Standard deviation	0.67	0.64	
Seminars / discussions / information on cleanliness	The average value	3.58	3.31	0.0000
	Standard deviation	0.69	0.61	
Staff behavior	The average value	3.43	3.40	0.0023
	Standard deviation	0.69	0.64	
Response to the complaint	The average value	3.19	2.84	-2.449***
	Standard deviation	0.62	0.64	

\*: p<0.05, \*\*: p<0.01, \*\*\*: p<0.001

In Astana and Almaty, private organizations are engaged in the removal of solid and household waste, construction, industrial waste and bulky garbage. Comprehensive work on the collection and transportation

of solid waste is carried out in accordance with the terms of the contract concluded with the Department of Natural Resources and Environmental Management for five years. In Astana and Almaty, the frequency of waste collection is the same 1 time per day. Every day until 8.00 all waste from garbage containers is taken out by private organizations to the landfill of solid household waste. On weekends and holidays, waste is not taken to the landfill. Only the landfills of Astana meet all the requirements. A complex for sorting and processing of solid household items is operating in Astana. But the capacity of the waste sorting and recycling complex is very small. Despite the fact that the landfills of Almaty are located further from the city, the landfill covers an area of several kilometers, while the area of the landfill increases every year. There is no complex for sorting and processing of solid household substances in Almaty.

To identify and compare the average differences between different survey points in Astana and Almaty, a paired sample t-test was conducted for 9 points of the questionnaire. It is clear from the above table that for some parameters there are no significant average differences in people's opinions regarding waste management and collection in Astana and Almaty. A significant average difference is observed in several cases, namely: the nearest waste disposal sites (value  $t = -2.039$ ), which shows that residents of Almaty were more satisfied with the proximity of waste disposal sites, residents of Almaty were more satisfied with the payment of waste collection compared to residents of Astana (value  $t = -6.287$ ). Residents of Astana and Almaty were pleased with the frequency of waste collection, vehicles and equipment used for garbage collection and street sweeping, the behavior and accuracy of employees in the performance of their duties.

### c) *Social surveys on solid waste management*

In our study, an empirical study was conducted, during which a survey of the population on solid waste management was conducted. For this purpose, a special questionnaire was developed with questions on the topic of solid waste management and the proposed answer options.

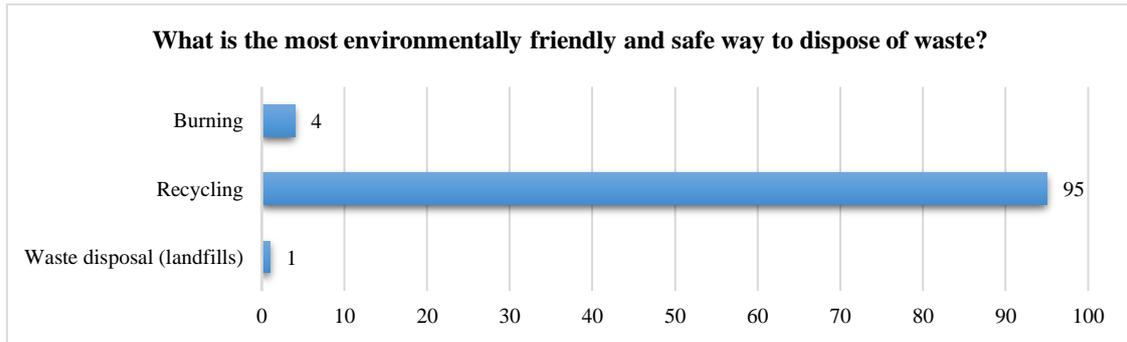
The survey of residents was conducted using questionnaires (using forms docs.google.com), where 20 questions were asked about the ecology of the city in an individual form. The survey was conducted for 2 months (from August to October 2023). 980 Astana residents randomly over the age of 18 from 4 districts of the city were interviewed: Yesilsky, Saryarkinsky, Almaty, Baikonur.

As a result of the survey, it is possible to get an idea of opinions on waste management issues, as well as about the knowledge of the population about waste disposal and recycling.

Surveys included the creation of enterprises in this area (for example, incinerators, landfills), as well as feedback on the preparation for recycling, the volume of waste collected and the service life of each material.

Among all respondents, women accounted for 50.5%, men – 49.5%, respectively. It can be said that both men and women are interested in environmental issues. In general, the answer to the most important question about whether people are engaged in separate collection: 24.7% answered «yes», 28.8% partially answered separate collection (paper, bottles) and only 46.5% answered «no».

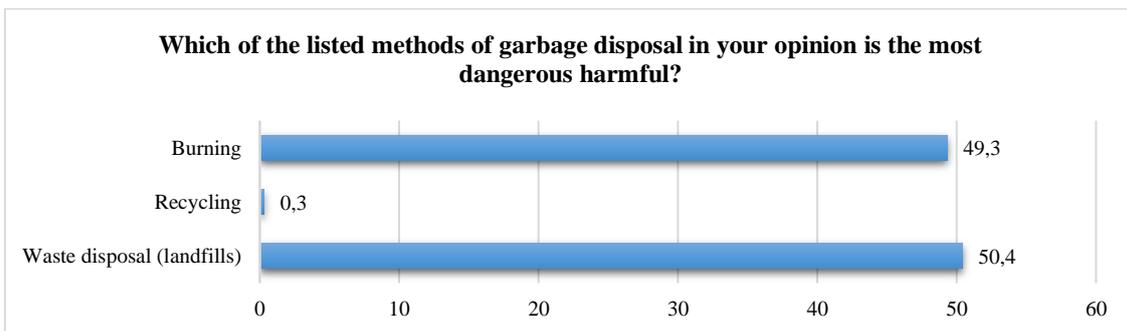
931 respondents voted for "recycling" as the safest and most environmentally friendly way (see Figure 3).



**Figure 3.** Respondents' answers to the question about a more environmentally friendly and safe way of waste disposal.

Source: Created by the authors based on public data.

As for the most dangerous and non-ecological method of waste disposal, the respondents were almost equally divided between disposal and incineration of waste (Figure 4).

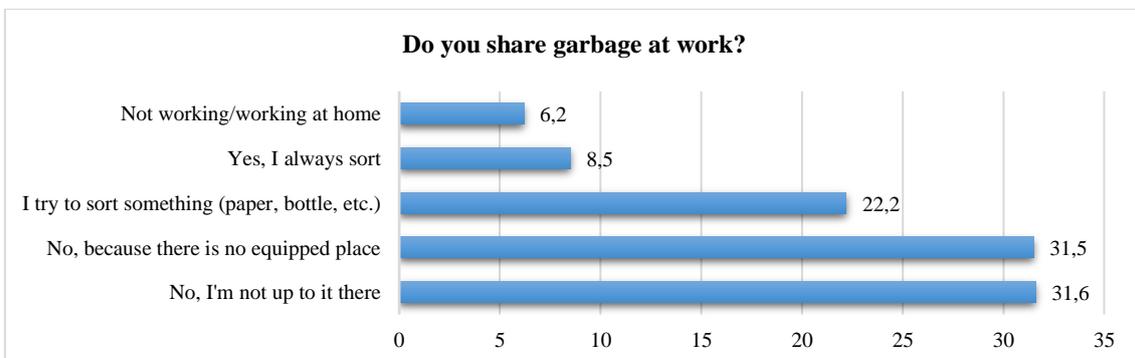


**Figure 4.** Survey on the most dangerous and harmful method of garbage disposal.

Source: Created by the authors based on public data.

It can be said that residents were not informed that incineration can be an environmentally friendly and even very effective method for the economy if sorted waste is burned and environmentally friendly technologies are applied. CO<sub>2</sub> emissions can be low. In developed countries, fuel is used as an energy supply for all cities and electricity generation (Burkaltseva et al., 2022b; Igaliyeva et al., 2020; Nurzhanova et al., 2020; Barykin et al., 2022)

The question of whether people do waste at work was included in the survey, since many people often spend them outside the home, where they may have established some kind of waste distribution order at work. Only 8.50 % of respondents always sort (Figure 5).



**Figure 5.** Survey on the distribution of garbage at work.

Source: Created by the authors based on public data.

Additionally, 16 questions were asked to Astana residents. The survey included information about the services provided by the population in the city, the informal sector, informing the population, and waste treatment behavior (Table 7).

**Table 7.**  
*Questions compiled by the authors and presented to the residents of Astana*

Point of view	№	Questions (Q)	Possible answers to the question (Ai)
Opinions	Q1	What kind of material do you think is separated from solid household waste?	Waste for disposal in a landfill; Materials for recycling; Waste for incineration; I do not know.
	Q2	Would you agree to build another landfill in your city?	Yes; No, I am categorically against it; Yes, this is the best option for my city; I do not know.
	Q3	Would you agree to the construction of an incinerator in your city?	Yes; No; Yes, this is the best option for my city; I do not know.
	Q4	What do you think are the most littered places in our city?	Streets; Courtyards; Recreation area; I do not know.
	Q5	What, in your opinion, is the main reason for the littering of our city?	Insufficient number of bins and garbage containers; Lack of a clear system for collecting and disposing of garbage; Low level of culture of the residents of our city; I do not know.
Knowledge	Q6	What is hazardous waste?	Medicinal substances; Batteries; Chemicals; I do not know
	Q7	Approximately how much food waste is generated in your family per day?	200 g; 2 kg; 20 kg; I do not know
	Q8	What measures can be taken to reduce the amount of waste?	Can use reusable containers and bottles; Switch to digital document formats; Send materials not to landfill, but for recycling; I do not know.
	Q9	What are the benefits of recycling for the environment?	Reducing the volume of untreated waste in landfills; Reducing greenhouse gas emissions; Creating new jobs and saving resources; I do not know.
	Q10	What consequences can there be if you do not follow the rules of waste management?	Nothing will happen; Fines and administrative penalties will be imposed; It may lead to environmental pollution; I do not know.
	Q11	What is hazardous household waste?	Glass; Toxic substances and Medical waste; Industrial and industrial waste; I do not know
Services	Q12	What innovative technologies are used for waste recycling?	Biotechnologies that allow the conversion of organic waste into biogas and compost; Chemical method; Hydrolysis; I do not know
Informal sector	Q13	Do informal collectors collect usable waste?	Never; Sometimes; Often; I do not know
Services	Q14	Is the time of gathering citizens satisfactory?	Never; Sometimes; Yes; I do not know
Informing the public	Q15	Do local governments conduct campaigns to inform the public about recycling?	Never; Sometimes; Often; I do not know
Recycling behavior	Q16	The number of sorting containers near the house with an indication of the marking and drawing.	Not enough; More than two; Enough; I do not know

When asked what material is released from solid household waste, the respondents answered as follows: waste for landfill disposal -32.6%; materials for recycling -41.2%; waste for incineration -18%; waste for incineration -8.2%. When asked if you agree to build another landfill in your city, 38.8% of respondents replied that no, I am categorically against it; 39.6% replied that they did not know. When asked what, in your opinion, are the most garbage places in the city, the majority of respondents replied that these are yards. Indeed, the courtyards of the capital's residential complexes are buried in garbage. Untimely waste removal is becoming one of the main problems of Astana. local authorities admit that the monopolist service company simply cannot cope with the rapidly growing city, and tariffs for the removal of household waste are too low.

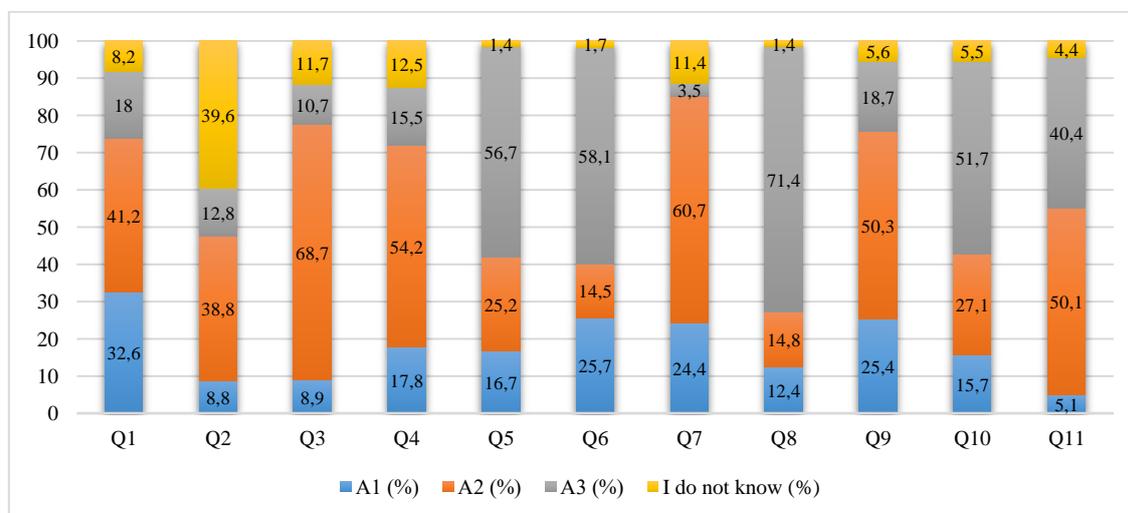
As for knowledge, the public is well aware of the types of household waste. To the question whether the official frequency of waste collection (per week), the time of collection of citizens, the residents answered satisfactorily (Q14). It can be concluded that the informal sector is poorly known and not recognized by citizens, and public campaigns are known, but not fully respected and not used (Q13, Q15). Residents pointed out a small number of sorting containers near the house with a note and a picture (Q16).

**Table 8.**

The results of the survey of the population of Astana. Higher percentages are in bold, while lower percentages are in italics

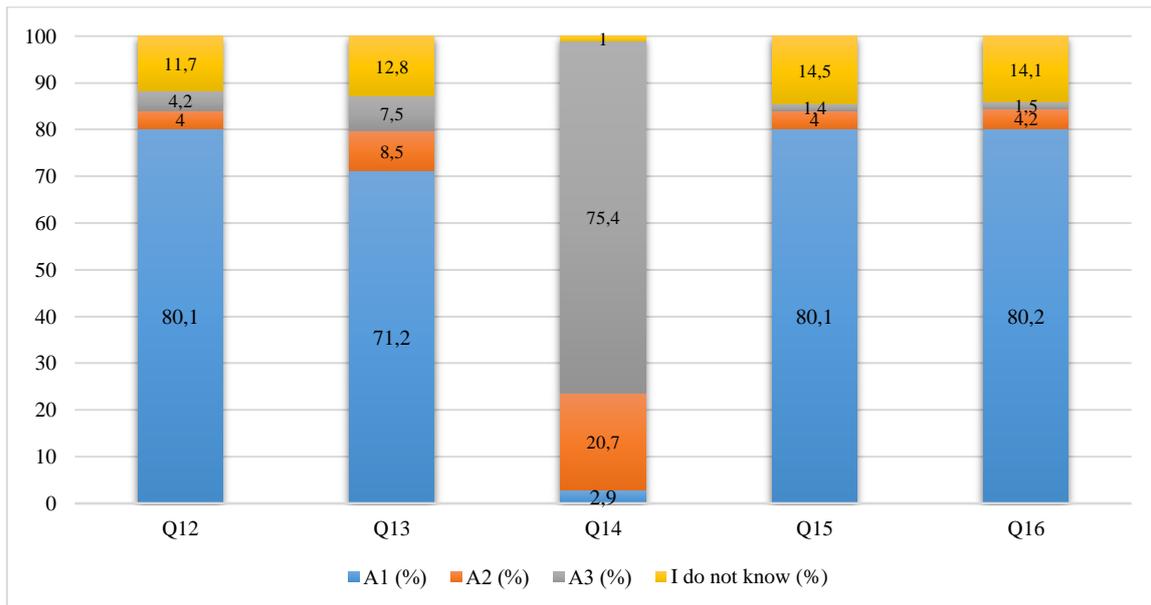
Questions	A1 (%)	A2 (%)	A3 (%)	I do not know (%)
Q1	32.6	<b>41.2</b>	18	8.2
Q2	8.8	<b>38.8</b>	12.8	39.6
Q3	8.9	<b>68.7</b>	10.7	11.7
Q4	17.8	<b>54.2</b>	15.5	12.5
Q5	16.7	25.2	<b>56.7</b>	1.4
Q6	25.7	14.5	<b>58.1</b>	1.7
Q7	24.4	<b>60.7</b>	3.5	11.4
Q8	12.4	14.8	<b>71.4</b>	1.4
Q9	25.4	<b>50.3</b>	18.7	5.6
Q10	15.7	27.1	<b>51.7</b>	5.5
Q11	5.1	<b>50.1</b>	40.4	4.4
Q12	<b>80.1</b>	4.0	4.2	11.7
Q13	<b>71.2</b>	8.5	7.5	12.8
Q14	2.9	20.7	<b>75.4</b>	1.0
Q15	<b>80.1</b>	4.0	1.4	14.5
Q16	<b>80.2</b>	4.2	1.5	14.1

The results of the survey of residents of the capital are presented in Table 8 and in Figure 6, Figure 7.



**Figure 6.** Q1–Q11 results expressed in % (Q: Question; A: Answer).

Source: Created by the authors based on public data.



**Figure 7.** Results Q12–Q16, expressed in % (Q: Question; A: Answer).

Source: Created by the authors based on public data.

As a result of this survey, it turned out that 46.5% of the surveyed residents do not sort the discarded garbage. We can say that the problem of garbage in Astana worries many people. In addition, a small part collects household waste separately, but at the same time many people want this, but face problems because they do not know where the individual garbage collection points are located. Residents are concerned about the shortage of garbage collection containers and recycling containers, and residents are asking for an increase in the number of garbage collection containers. The public is well aware of the types of household waste. However, it is necessary to continue to inform the population and indicate the addresses of the collection points of these wastes. A survey of residents of the capital, conducted based on the results of a survey developed by the authors, showed that most citizens realize the importance of the problem of plastic waste and try to reduce the size of such garbage, and try to reduce the size of this waste, but a significant part of residents still do nothing about it. From the results of an empirical study, information was obtained to clarify the problems of handling solid household waste of the population and to determine recommendations for their solution.

Many studies have been conducted in Kazakhstan that directly or indirectly contribute to solving problems related to the need for proper waste management associated with Kazakhstan's gradual transition to a low-carbon economy in order to achieve Sustainable Development Goals.

In Kazakhstan, in the context of a "green economy", work is underway on effective waste recycling to ensure the sustainable development of the country's economy. Currently, Kazakhstan implements 17 Sustainable Development Goals proposed by the United Nations in 2015, as the results of departments and strategic industrial development plans correspond to the main goals of the SDGs.

Table 9 shows that of the 17 SDGs, six (7, 9, 11, 12, 13 and 17) are directly or indirectly related to the issues of effective waste management in Kazakhstan in a "green economy".

In this regard, we have given below a number of suggestions for solving some of the problems of the research goal (Table 5).

**Table 9.**  
*Mechanisms for the implementation and achievement of Sustainable Development Goals*

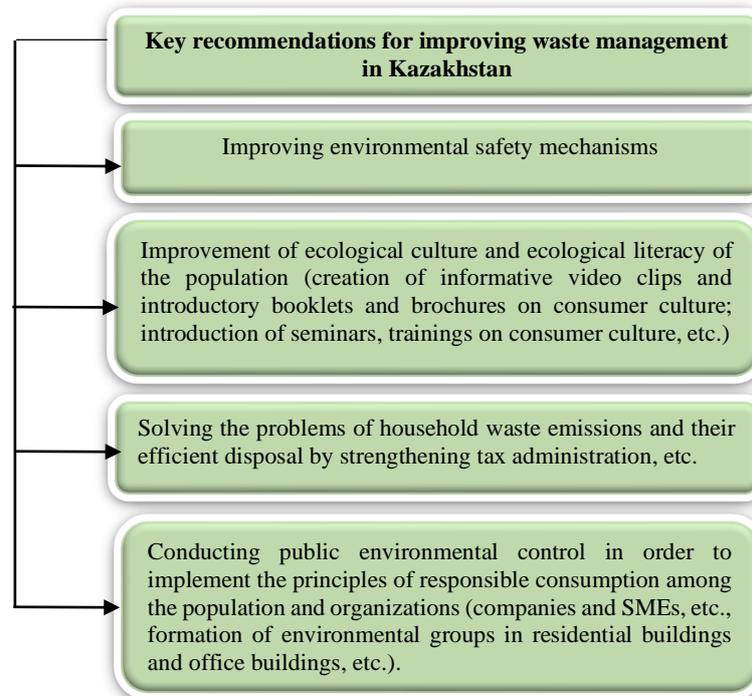
No	Description of the SDGs	Mechanisms for the implementation and achievement of the SDGs	Expected effect
SDGs 7	Not expensive and clean energy	Energy efficiency is increasing, and the electric power sector is making great strides in the field of renewable energy sources.	Economic effect, Social effect
SDGs 9	Building sustainable infrastructure, promoting industrialization and innovation	Innovation and technological progress increase resource efficiency and energy efficiency, search for long-term solutions to economic and environmental problems	Economic effect, Social effect
SDGs 11	Ensuring openness, security, resilience and environmental sustainability of cities and settlements	Rapid urbanization will lead to population growth and worsening air pollution.	Environmental effect
SDGs 12	Responsible consumption and production	Ensuring the transition to rational patterns of consumption and production, which continues to have a devastating impact on the planet.	Economic effect, Social effect, Environmental effect
SDGs 13	Fighting climate change	Climate change has not stopped. The global economy is expected to recover after the pandemic, and emissions will return to higher levels.	Economic effect, Social effect, Environmental effect
SDGs 17	Partnership for Sustainable Development	The successful implementation of sustainable development is impossible without inclusive partnerships at the global, regional and local levels based on principles and values aimed at satisfying human interests.	Economic effect, Social effect, Environmental effect

The data in Table 9 show that if Kazakhstan gradually transitions to low-carbon neutrality in the context of achieving the Sustainable Development Goals, the proposed mechanisms may contribute to solving some problems related to waste management, and the material mechanism proposed as part of the gradual transition to low-carbon neutrality in the context of achieving the Sustainable Development Goals may contribute to solving some problems related to with waste recycling.

The identified (existing) problems of waste management in our country need to be solved in a three-way (three-level) direction: the state, companies and the population.

The identified (existing) problems of waste management in our country need to be solved in a three-way (three-level) direction: the state, companies and the population.

So, based on the above conclusions, we have proposed some recommendations for improving waste management in Kazakhstan (Figure 8).



**Figure 8.** Main recommendations for improving waste management in Kazakhstan.

Garbage collection and sorting can be improved with simple technologies that minimize the total waste incinerated or disposed of. This allows the waste to be used for other purposes, such as the production of fertilizers and biogas. Carbon emissions from waste can be completely eliminated, but an integrated waste management model based on the principles of a sustainable closed-loop economy is needed. The complete elimination of the impact of waste on the environment and health requires a radical transition from existing linear consumption models to a recycling model (Fan et al., 2021; Berenguer et al., 2023; Mukhit & Syafrudin, 2018).

The use of modern technologies, in particular the Internet of Things, machine learning, mobile peripheral computing, blockchain technology and LoRaWAN, has played an important role in the revolutionary transformation of waste management in smart cities. These technologies provide an integrated approach to waste management, allowing the use of innovative strategies such as real-time monitoring, route optimization, automatic sorting and classification, as well as effective forecasting of waste generation trends. Revenues from composting, water treatment and waste have increased the well-being of greenhouse producers to a greater extent than other participants in the supply chain (Hassan et al., 2016; Navghane et al., 2016; Gutierrez et al., 2015; Bartl, 2011).

In order to meet the growing needs of people for a better life, it is necessary to comprehensively modernize existing landfills, integrate landfill resources in one city and develop new technologies through research and development of new technologies, new equipment, learn from foreign advanced technologies and management experience and use the potential of existing garbage stations; at the same time, actively promote environmental education in universities, secondary schools, strengthen the promotion of garbage classification in the community and other methods of social participation to effectively solve the problems of urban garbage removal.

## Conclusion

The purpose of the study is to study issues related to the formation of solid household waste in Kazakhstan.

In Kazakhstan, solid waste management is aimed at recycling, but the problem of organizing modern landfills in most cases is poorly solved. Waste recycling companies are not able to achieve the expected results in waste distribution. The relations between the state, local authorities and the population were established correctly, the mechanisms of interaction between them were not implemented. In our study,

empirical research was conducted on a survey of the population on solid waste management. To analyze the problems and satisfaction of the population with the waste management system implemented by local authorities in cities, a survey was conducted in two cities of Kazakhstan - Astana and Almaty. For this study, a sample of 978 respondents from each randomly selected city was selected, which included an equal number of respondents. To assess the level of public satisfaction with the waste management system in the cities of Astana and Almaty, we used the t-testing method for an independent sample. After the survey, we found that residents of Astana are more satisfied with the waste management system of each category than residents of Almaty.

For this purpose, a special survey was prepared with questions about working with solid waste and the proposed answers. After analyzing the respondents' responses to the survey, it became clear which points should be paid more attention to when conducting marketing campaigns. It is important to ensure the smooth and efficient operation of the waste incineration and recycling plant. Based on the analysis, it is proposed to create several public communication channels to inform the public about the problem of separate collection of plastic waste and to study the importance of such events:

It is proposed to create many public communication channels through which it is possible to raise awareness of residents about the problem of plastic waste and explain the importance of such events:

- improvement of environmental culture and environmental literacy of the population (creation of informative videos and introductory booklets and brochures on consumer culture; seminars, trainings on consumer culture, etc.);
- conducting public environmental control in order to introduce the principles of responsible consumption among the population and organizations (companies and SMEs, etc.) (formation of environmental groups in residential buildings and office buildings, etc.);
- creation of children's games on environmental culture and instilling in children the principles of responsible consumption;
- solving the problems of household waste emissions and their effective disposal by strengthening tax administration, etc.
- creating an environmental passport for organizations.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.3>

How to Cite:

Mira-Segura, L., Martínez-Cruz, M., Trejo-Martínez, A., Kryvko, A., & Dorantes-Benavidez, H. (2024). "Optimización de inventarios en la industria del plástico: un caso de éxito con el método Holt-Winters". *Amazonia Investiga*, 13(77), 42-52. <https://doi.org/10.34069/AI/2024.77.05.3>

## “Optimización de inventarios en la industria del plástico: un caso de éxito con el método Holt-Winters”

### Inventory Optimization in the Plastics Industry: A Holt-Winters Success Story

Received: April 5, 2024

Accepted: May 20, 2024

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#### Resumen

El inventario de producto terminado en las empresas es un factor determinante en las buenas prácticas financieras, contribuye a una disminución en costos y garantiza las entregas con los clientes, en este trabajo, se aplicó la técnica de ABC y Holt Winters a partir de pronósticos en una empresa de la región oriente del estado de México que fabrica artículos plásticos (utensilios de cocina), con el objetivo de optimizar su sistema de inventarios. Esta empresa en su catálogo de producción cuenta con más de 100 artículos, lo que en ocasiones el control del inventario resulta costoso y problemático, ya que no programan la fabricación de forma periódica y sistemática, generando mala imagen con el cliente al momento de la entrega. En este contexto la clasificación de inventarios ABC se utiliza ampliamente para organizar automáticamente los artículos en grupos representativos según su aportación a las ventas. De acuerdo con los datos registrados in situ, se identificaron los productos más vendidos y como aportación adicional de la investigación, se obtiene el Inventario de Seguridad

#### Abstract

The inventory of finished product in companies is a determining factor in good financial practices, contributes to a decrease in costs and guarantees deliveries with customers, in this work, the ABC and Holt Winters technique was applied based on forecasts in a company in the eastern region of the state of Mexico that manufactures plastic items (kitchen utensils). with the aim of optimizing your inventory system. This company has more than 100 items in its production catalog, which sometimes inventory control is costly and problematic, since they do not schedule manufacturing periodically and systematically, generating a bad image with the customer at the time of delivery. In this context, the ABC inventory classification is widely used to automatically organize items into representative groups according to their contribution to sales. According to the data recorded in situ, the best-selling products were identified and as an additional contribution to the investigation, the Safety Inventory (SS) is obtained, which guarantees the fulfillment of customer orders in a timely manner.

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(SS) lo que garantiza el cumplimiento de los pedidos de los clientes de forma puntual.

**Keywords:** classification, customers, holt-winters, inventories, production.

**Palabras clave:** clasificación, clientes, holt-winters, inventarios, producción.

## Introducción

El uso de los plásticos en la vida cotidiana ha traído grandes beneficios, es de conocimiento general que su versatilidad, funcionalidad, variedad, entre otras son solo algunas de las grandes bondades que éstos tienen. Sin embargo, en el proceso de fabricación, es de vital importancia considerar el tiempo de entrega de los insumos por los proveedores. Algunos factores importantes para considerar cuando se hace la planeación de la compra de resinas son la ubicación de proveedores, la disponibilidad de materias primas, los aranceles y gastos incurridos en los traslados, tratados comerciales, entre otros. En un contexto general, podemos mencionar que según la revista Ambiente Plástico, en Europa han reducido los ritmos de producción considerablemente, lo que ha incrementado que algunos fabricantes de artículos hayan subido los precios de sus productos hasta en un 75%, según datos de la Asociación Española de Industriales de Plásticos (ANAIP). Otro factor importante se refleja en la cadena de suministro, diversos eventos como la guerra entre Ucrania y Rusia, huracanes y heladas, hasta paros de operación en plataformas, han provocado escasez de diversas materias primas del giro, por consecuencia se incrementa el precio de los productos o desabasto de los pedidos a los clientes. La industria del plástico en México representó según la Secretaría de Economía (SE) en el año 2020 el 2.8% del Producto Interno Bruto Manufacturero, no obstante que por su situación geográfica y contar con accesos al mar, presenta dificultades para el abasto de resinas plásticas. El Estado de México, entidad donde se ubica la organización analizada, en los años 2013-2015 fue el segundo estado con mayor crecimiento en la producción de plásticos, según la revista Plastics Technology México, 2020.

Adentrándonos en la organización del caso de estudio, tenemos que ésta cuenta con 124 productos en su catálogo y demuestra que tiene la dificultad en la planificación de compras de resinas plásticas, programas de producción a destiempo, asignación de espacios en el almacén sin orden y, poco conocimiento del comportamiento de sus ventas de todos los productos, por lo que uno de los primeros objetivos fue diseñar un sistema de catálogo de artículos por categorías. También se aplicó el método ABC control de inventarios, se utiliza en empresas de diversos giros para categorizar los productos en función de la demanda y su relación con los costos (González & Arriagada-Benítez, 2023), y su relación con las ventas mensuales históricas de los periodos 2023, 2022 y 2021, cabe señalar que estos datos reflejados fueron atípicos, ya que durante el episodio de la pandemia por el virus COVID-19 la organización redujo su plan de producción en un 30% para los años 2021 y 2022 sin embargo, los datos fueron representativos para poder calcular los de mayores ventas. Una vez obtenida esta información, se empleó la metodología Holt-Winters, siendo éste un método de pronóstico estadístico que utiliza promedios ponderados de observaciones pasadas para pronosticar pasos futuros (Ahmadi et al., 2023) para esos mismos periodos de los productos seleccionados y finalmente se realizó el cálculo del inventario de seguridad (SS) para programar su respectiva materia prima, el tiempo de fabricación y garantizar las entregas oportunas a los clientes.

En la primera parte de este artículo, se presenta una revisión de la literatura sobre sistemas de inventarios y las metodologías utilizadas, particularmente ABC y Holt-Winters; en segundo lugar, se describe la metodología aplicada en el caso de estudio; en tercer lugar, se presentan y discuten los resultados obtenidos; y finalmente, se exponen las conclusiones y recomendaciones derivadas del estudio.

## Marco Teórico o Revisión de literatura

Las organizaciones deben planificar de forma correcta su programa de producción para garantizar el tiempo ocupado de máquina y el suministro de las materias primas. Para el caso específico de productos terminados y materias primas no deben exceder la capacidad específica de los almacenes, es decir, deben calcularse inventarios óptimos, ya que esto impacta directamente en el costo de administración.

## Sistemas de Inventarios

Los inventarios o existencias almacenadas deben cumplir tres funciones principales: reguladora (se desconoce la tendencia del mercado, pero con éste se hace frente a incrementos en ventas), comercial

(cumple con condiciones pactadas con los clientes) y económica (si se compran grandes cantidades de materia prima permite negociar con los proveedores mejores condiciones) (Ladrón, 2020).

La gestión de inventarios está relacionada con las medidas necesarias para lograr mantener el control y la seguridad administrativa de las existencias de la familia de productos de una empresa, con la intención de mantener la plena integridad física ante los posibles riesgos de operación (Díaz, 1996). Las organizaciones deben propiciar prácticas para protegerse contra riesgos de desabasto o incrementos en demanda por los clientes, igualmente se debe programar la producción y asegurar la cadena de suministro.

La gestión de inventarios es una función vital para conocer la demanda del mercado, es una supervisión permanente de control, almacenamiento y utilización de cantidades de productos que la organización usa para la producción (Zowid et al., 2019). Un sistema de control de inventarios se determina como sistema de contabilidad que se utiliza para registrar mercancías existentes y para establecer el costo de la mercancía vendida, donde existen básicamente dos sistemas para llevar a cabo los registros de inventario: el periódico y el sistema perpetuo (García-Pacheco & San Andrés-Laz, 2021). La gestión de inventarios se ha convertido en uno de los procesos esenciales de las empresas, pues no solo permite tener un mayor control de las mercancías, sino también lograr mejores resultados económicos y mayor rentabilidad (Calzado, 2022).

La existencia de productos en el almacén se basa en que la organización administre los suministros requeridos de acuerdo con la cantidad solicitada por el cliente y esto origina la eficiencia del costo del inventario, mejora la calidad de atención y servicio (Flores Tananta et al., 2020). Las teorías alrededor del inventario surgen a raíz de la necesidad de alinear la satisfacción de la demanda con la minimización de costos por conceptos de inversión de capital, faltantes y almacenamiento (Seijas Rodríguez, 2021).

Aplicando estos términos al caso de estudio, se prevendrá cualquier cambio en la demanda, considerando que el tiempo de producción es mucho mayor a los tiempos de entrega al cliente, esto ocasiona desabasto de materias primas para la línea de producción. Para abordar la problemática, se determinaron 2 fases en el desarrollo de la investigación. La primera fase corresponde a la aplicación de la técnica ABC y la segunda a realizar el modelo de Holt-Winters.

### **Técnica ABC**

Una vez definido el término de control de inventarios y la relevancia que tiene en la organización, nos disponemos a definir la técnica ABC para el manejo y control de los inventarios. Esta técnica es utilizada cuando se cuenta con un catálogo extenso de productos terminados en el almacén, ya que aporta una clasificación de carácter cuantitativo y cualitativo, que tiene por objetivo determinar a cada producto en categorías o clases según su variable de importancia, en su mayoría altas ventas.

La técnica ABC está estrechamente relacionada con el principio de Pareto, que establece que a menudo existe una relación inversa entre el porcentaje de los sujetos de cada grupo y el significado de los grupos (Zeljko & Becirovic, 2021). Para aplicar el principio o Ley de Pareto, se debe considerar las siguientes restricciones: primeramente, que corresponde a la participación del número total de productos derivado de que la clasificación A se encuentra entre el 5 y el 25%, la B entre el 20 y el 40% y la clasificación C entre el 40 y 75% del total de los productos. La segunda restricción refiere a los costos según el valor total de los productos, es decir, la representación sobre las ventas totales y siguiendo la terminología, para la clasificatoria de A debe estar entre el 40 y 80%, para B entre el 15 y 40% y C entre el 5 y 20%. Finalmente, la última restricción implica que C tiene la mayor cantidad de productos, la B una cantidad menor a C y la A una cantidad menor a B, según el principio de transitividad matemática.

Es decir, la clasificación ABC se divide en: A -muy importante, B – más importante y C, relativamente menos importante, como base para el control de inventarios (Pradini & Kusumastuti, 2023).

### **Modelo Holt-Winters**

Para poder atender los cambios en la demanda de los productos se recurre a realizar proyecciones, los pronósticos tradicionales están influenciados en gran medida por los métodos de pronósticos estadísticos univariados (Vesga Acevedo, 2020). Los productos de baja demanda se asumen tienen una demanda ocasional. El método de suavizado de Holt Winters creado por Charles Holt y Peter Winters, es uno de los

métodos para generar pronósticos para predecir datos que contienen patrones estacionales (Nurhamidah, 2020).

La técnica de Holt-Winters utiliza las siguientes ecuaciones:

$$L_i = \alpha \left( \frac{X_i}{S_{i-m}} \right) + (1-\alpha) (L_{i-1} + b_{i-1}) \quad (1)$$

$$b_i = \beta (L_i - L_{i-1}) + (1-\beta) b_{i-1} \quad (2)$$

$$S_i = \gamma \left( \frac{X_i}{L_i} \right) + (1-\gamma) S_{i-n} \quad (3)$$

$$Y_{i+m} = (L_i + m b_i) S_{i-n+m} \quad (4)$$

Siendo  $L_i$  el nivel de ventas cuando  $t=0$  (base del pronóstico),  $\alpha$  es el factor entre 0 y 1 para ponderar la base del pronóstico,  $\beta$  es el factor entre 0 y 1 para ponderar la tendencia, el factor de estacionalidad del periodo  $t$  está representado por  $S_i$ ,  $m b_i$  es el índice del periodo para el que se está pronosticando a partir del actual,  $1$  es el número de periodos en el ciclo estacional,  $\gamma$  corresponde a un valor entre 0 y 1 para ponderar la estacionalidad,  $b_i$  es la tendencia de las ventas en el periodo a analizar,  $i$  es el periodo de tiempo a analizar,  $X_i$  representan las ventas del periodo a analizar y  $Y_i$  será el pronóstico a calcular según el periodo de interés (Jiang et al., 2020) (Adeyinka & Muhajarine, 2020) (Trull et al., 2020).

El método de Holt-Winters utiliza los promedios móviles ponderados exponencialmente para actualizar los datos necesarios para ajustar la media (tendencia) y la estacionalidad, construyéndolo de forma multiplicativa (Leite Coelho da Silva et al., 2022). El modelo tiene dos variaciones, el primero corresponde a un modelo aditivo y el segundo al multiplicativo (Kumari & Singh, 2023). El pronóstico por Holt-Winters según los datos de referencia, tienen una distribución normal, por lo que es pertinente aplicar el teorema del límite central. Este método también se denomina tercer método de suavizado exponencial de tres tiempos, ya que puede predecir las series temporales con tendencia de estacionalidad en tiempo al mismo tiempo.

## Metodología

El objetivo fundamental de este trabajo es desarrollar un Sistema de Inventarios para la empresa ubicada en la región oriente del estado de México aplicando el Holt Winters y ABC, busca satisfacer la necesidad de contar con la seguridad de que los productos terminados sean entregados a los clientes conforme a los pedidos levantados en tiempo y forma. El trabajo desarrollado es de tipo cuantitativo, tomando datos históricos para la aplicación del modelo. Para aplicar el método ABC, se aplican los siguientes pasos:

- 1) Primeramente se toman los datos de ventas anuales de los años 2021, 2022 y 2023,
- 2) Posteriormente se obtuvo el promedio de ventas por artículo homologando los años ( $M_i$ ),
- 3) Se calcula la representatividad ( $R_i$ ) de cada producto según la cantidad de ventas, esto se obtiene multiplicando el costo unitario ( $cu$ ) de cada producto por el promedio de ventas ( $M_i$ ), matemáticamente esto es:

$$R_i = (M_i * cu) \quad (5)$$

- 4) Con los datos anteriores se obtiene la proporcionalidad ( $P_i$ ), calculando la representatividad ( $\Sigma R_i$ ) entre cada valor del promedio de ventas por producto ( $M_i$ ) y multiplicado por 100%:

$$P_i = (M_i / \Sigma R) * 100\% \quad (6)$$

- 5) La proporcionalidad ( $P_i$ ) es de suma importancia, ya que es la pauta para iniciar la clasificación ABC, ésta se realiza ordenando de mayor a menor aplicando el principio de Pareto. Una vez que se tiene todo el listado de los artículos clasificados en ABC, se aplica el modelo Holt-Winters con la herramienta de SOLVER. Es importante determinar los valores de  $\alpha$ ,  $\beta$  y  $\gamma$ , ya que éstos minimizan el error al momento de hacer el pronóstico (Behera et al., 2023), los valores de  $\alpha$ ,  $\beta$  y  $\gamma$ , pueden seleccionarse subjetivamente o generarse al minimizarse una medida de error de pronóstico (Hanke & Wichern, 2010), para este caso, se tomaron los datos de ventas de la técnica ABC y se corrió una suavización exponencial simple para minimizar el error cuadrático medio, con el análisis de sensibilidad se obtuvo que  $\alpha$  tiene un valor de 0.2692 (constante de suavización del nivel),  $\beta$  es igual a 0.2 (constante de suavización para el

estimado de tendencia) y  $\gamma$  tiene valor de 1 (constante de suavización para el estimado de estacionalidad).

Para el cálculo de  $L_i$  se analizaron los periodos de ventas y se observa que se tiene un patrón de ventas ascendente cada cuatro meses, por lo que para efectos de cálculo se tomara  $L_i=4$ . Utilizando las ecuaciones (1), (2), (3) y (4) para cada periodo obteniendo así el nivel estimado  $L_i$  (serie suavizada exponencial),  $b_i$  la estimación de la tendencia,  $S_i$  corresponde al estimado de estacionalidad y  $Y_{i+m}$  corresponde al pronóstico de los periodos futuros, tal como se muestra en la Tabla No. 3.

**Consideraciones Éticas:** Cabe señalar que la empresa ha otorgado todas las facilidades de acceso a la información para el desarrollo de esta investigación, adquiriendo el compromiso por parte de los autores a conservar la confidencialidad, el buen uso de estos y el resultado de esta.

## Resultados y discusión

En la Tabla 1, se muestran los datos para el análisis ABC, comprende los 124 artículos, incluyendo las ventas anualizadas según el costo unitario de cada uno, se muestra el total de la venta de todos sus productos ordenados de mayor a menor.

**Tabla No. 1.**

*Registro de ventas y proporcionalidad de 124 productos.*

Item	Producto	Color	Total	Proporción	Acum
1	Vaso infantil	Rojo	\$227,000.00	4.0%	4.0%
2	Vaso infantil	Amarillo	\$187,000.00	3.3%	7.3%
3	Jarra	Transparente	\$165,000.00	2.9%	10.1%
4	Vaso infantil	Azul	\$158,000.00	2.8%	12.9%
5	Jarra mini	Transparente	\$157,000.00	2.8%	15.7%
6	Vaso grande	Rojo	\$147,000.00	2.6%	18.2%
7	Vaso grande	Amarillo	\$142,000.00	2.5%	20.7%
8	Vaso grande	Azul	\$133,000.00	2.3%	23.1%
9	Exprimidor	Rojo	\$117,000.00	2.1%	25.1%
10	Vaso infantil	Verde	\$108,000.00	1.9%	27.0%
11	Vaso grande	Verde	\$103,000.00	1.8%	28.8%
12	Colador chico	Rojo	\$101,000.00	1.8%	30.6%
13	Salero grande	Amarillo/Rojo	\$100,000.00	1.8%	32.3%
14	Jarra mini	Azul	\$93,000.00	1.6%	34.0%
15	Exprimidor	Verde	\$89,000.00	1.6%	35.5%
16	Salero mini	Azul/Rojo	\$84,000.00	1.5%	37.0%
17	Exprimidor	Amarillo	\$82,500.00	1.4%	38.5%
18	Jarra mini	Verde	\$81,000.00	1.4%	39.9%
19	Vaso infantil	Rosa	\$80,000.00	1.4%	41.3%
20	Exprimidor de vaso	Rojo	\$77,000.00	1.3%	42.6%
21	Exprimidor	Azul	\$76,000.00	1.3%	44.0%
22	Pinzas grande	Amarillo	\$76,000.00	1.3%	45.3%
23	Cuchara grande	Amarillo	\$75,000.00	1.3%	46.6%
24	Colador chico	Amarillo	\$74,000.00	1.3%	47.9%
25	Colador grande	Rojo	\$72,000.00	1.3%	49.2%
26	Jarra mini	Amarillo	\$71,000.00	1.2%	50.4%
27	Salero grande	Azul/Rojo	\$69,000.00	1.2%	51.6%
28	Salero grande	Verde/Azul	\$69,000.00	1.2%	52.8%
29	Pinzas grande	Rojo	\$68,000.00	1.2%	54.0%
30	Bandeja grande	Rojo	\$67,000.00	1.2%	55.2%
31	Plato pastelero	Amarillo	\$64,000.00	1.1%	56.3%
32	Colador grande	Amarillo	\$64,000.00	1.1%	57.4%
33	Bandeja grande	Amarillo	\$62,000.00	1.1%	58.5%
34	Vaso grande	Rosa	\$60,000.00	1.1%	59.6%
35	Aplastador	Amarillo	\$60,000.00	1.1%	60.6%
36	Bandeja chica	Rojo	\$59,000.00	1.0%	61.7%
37	Cuchara grande	Verde	\$58,000.00	1.0%	62.7%
38	Salero mini	Amarillo/Rojo	\$58,000.00	1.0%	63.7%
39	Plato pastelero	Verde	\$57,000.00	1.0%	64.7%
40	Exprimidor de vaso	Amarillo	\$57,000.00	1.0%	65.7%
41	Aplastador	Rojo	\$56,000.00	1.0%	66.7%
42	Vaso infantil	Morado	\$55,000.00	1.0%	67.6%



Item	Producto	Color	Total	Proporción	Acum
43	Jarra mini	Rosa	\$53,000.00	0.9%	68.6%
44	Tortillero	Amarillo	\$50,000.00	0.9%	69.4%
45	Plato extendido	Amarillo	\$48,000.00	0.8%	70.3%
46	Servilletero	Rojo	\$48,000.00	0.8%	71.1%
47	Plato pastelero	Azul	\$47,000.00	0.8%	71.9%
48	Pinzas mini	Rojo	\$47,000.00	0.8%	72.8%
49	Jarra	Azul	\$46,000.00	0.8%	73.6%
50	Colador chico	Verde	\$46,000.00	0.8%	74.4%
51	Colador grande	Verde	\$44,000.00	0.8%	75.2%
52	Cuchara grande	Azul	\$44,000.00	0.8%	75.9%
53	Pinzas grande	Azul	\$44,000.00	0.8%	76.7%
54	Bandeja grande	Verde	\$42,000.00	0.7%	77.4%
55	Cuchara grande	Blanca	\$42,000.00	0.7%	78.2%
56	Exprimidor	Rosa	\$40,000.00	0.7%	78.9%
57	Bandeja chica	Amarillo	\$40,000.00	0.7%	79.6%
58	Salero mini	Verde/Azul	\$40,000.00	0.7%	80.3%
59	Colador grande	Azul	\$38,000.00	0.7%	80.9%
60	Bandeja grande	Azul	\$35,000.00	0.6%	81.6%
61	Colador chico	Azul	\$35,000.00	0.6%	82.2%
62	Jarra	Verde	\$34,000.00	0.6%	82.8%
63	Plato extendido	Rojo	\$34,000.00	0.6%	83.4%
64	Plato extendido	Rosa	\$33,000.00	0.6%	83.9%
65	Plato pastelero	Rojo	\$33,000.00	0.6%	84.5%
66	Pinzas grande	Verde	\$33,000.00	0.6%	85.1%
67	Jarra mini	Morado	\$32,000.00	0.6%	85.7%
68	Vaso grande	Morado	\$32,000.00	0.6%	86.2%
69	Colador grande	Rosa	\$30,000.00	0.5%	86.7%
70	Plato sobero	Amarillo	\$27,000.00	0.5%	87.2%
71	Exprimidor	Morado	\$27,000.00	0.5%	87.7%
72	Exprimidor de vaso	Verde	\$27,000.00	0.5%	88.2%
73	Plato extendido	Azul	\$26,200.00	0.5%	88.6%
74	Jarra	Rosa	\$26,000.00	0.5%	89.1%
75	Pinzas mini	Amarillo	\$26,000.00	0.5%	89.5%
76	Plato extendido	Morado	\$25,000.00	0.4%	90.0%
77	Bandeja grande	Morado	\$25,000.00	0.4%	90.4%
78	Bandeja grande	Rosa	\$23,000.00	0.4%	90.8%
79	Servilletero	Verde	\$23,000.00	0.4%	91.2%
80	Jarra	Amarillo	\$21,000.00	0.4%	91.6%
81	Cucharon	Rojo	\$21,000.00	0.4%	92.0%
82	Plato extendido	Verde	\$21,000.00	0.4%	92.3%
83	Exprimidor de vaso	Azul	\$21,000.00	0.4%	92.7%
84	Tortillero	Rojo	\$20,000.00	0.4%	93.0%
85	Pinzas grande	Rosa	\$20,000.00	0.4%	93.4%
86	Aplastador	Azul	\$19,500.00	0.3%	93.7%
87	Aplastador	Verde	\$17,500.00	0.3%	94.0%
88	Jarra	Morado	\$17,000.00	0.3%	94.3%
89	Plato sobero	Verde	\$16,500.00	0.3%	94.6%
90	Tortillero	Azul	\$16,500.00	0.3%	94.9%
91	Colador grande	Morado	\$16,000.00	0.3%	95.2%
92	Colador chico	Rosa	\$16,000.00	0.3%	95.5%
93	Bandeja chica	Verde	\$15,000.00	0.3%	95.7%
94	Tortillero	Verde	\$14,000.00	0.2%	96.0%
95	Pinzas mini	Verde	\$13,500.00	0.2%	96.2%
96	Cucharon	Verde	\$13,200.00	0.2%	96.5%
97	Exprimidor de vaso	Rosa	\$13,000.00	0.2%	96.7%
98	Bandeja chica	Azul	\$12,500.00	0.2%	96.9%
99	Cucharon	Amarillo	\$11,500.00	0.2%	97.1%
100	Plato sobero	Azul	\$10,500.00	0.2%	97.3%
101	Plato pastelero	Rosa	\$10,500.00	0.2%	97.5%
102	Servilletero	Azul	\$10,500.00	0.2%	97.7%
103	Servilletero	Amarillo	\$10,000.00	0.2%	97.8%
104	Aplastador	Rosa	\$9,500.00	0.2%	98.0%
105	Pinzas grande	Morado	\$9,500.00	0.2%	98.2%
106	Cucharon	Azul	\$8,500.00	0.1%	98.3%
107	Aplastador	Morado	\$8,000.00	0.1%	98.5%
108	Plato sobero	Rojo	\$7,500.00	0.1%	98.6%
109	Bandeja chica	Morado	\$7,500.00	0.1%	98.7%

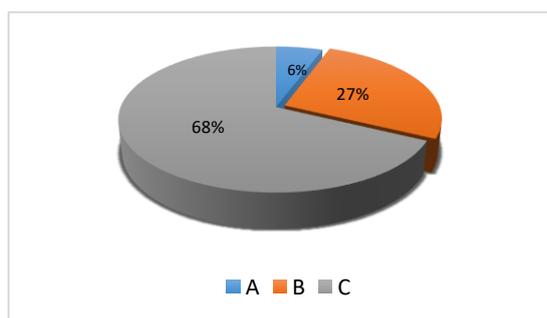


Item	Producto	Color	Total	Proporción	Acum
110	Pinzas mini	Azul	\$7,500.00	0.1%	98.8%
111	Pinzas mini	Rosa	\$7,000.00	0.1%	99.0%
112	Tortillero	Rosa	\$6,500.00	0.1%	99.1%
113	Pinzas mini	Morado	\$6,500.00	0.1%	99.2%
114	Cucharon	Rosa	\$5,800.00	0.1%	99.3%
115	Bandeja chica	Rosa	\$5,500.00	0.1%	99.4%
116	Colador chico	Morado	\$5,500.00	0.1%	99.5%
117	Exprimidor de vaso	Morado	\$5,500.00	0.1%	99.6%
118	Cucharon	Morado	\$5,000.00	0.1%	99.7%
119	Plato pastelero	Morado	\$5,000.00	0.1%	99.8%
120	Servilletero	Rosa	\$4,500.00	0.1%	99.8%
121	Servilletero	Morado	\$2,700.00	0.05%	99.9%
122	Plato soperero	Rosa	\$2,300.00	0.04%	99.9%
123	Plato soperero	Morado	\$2,000.00	0.04%	100.0%
124	Tortillero	Morado	\$2,000.00	0.04%	100.0%

Elaboración propia (2024).

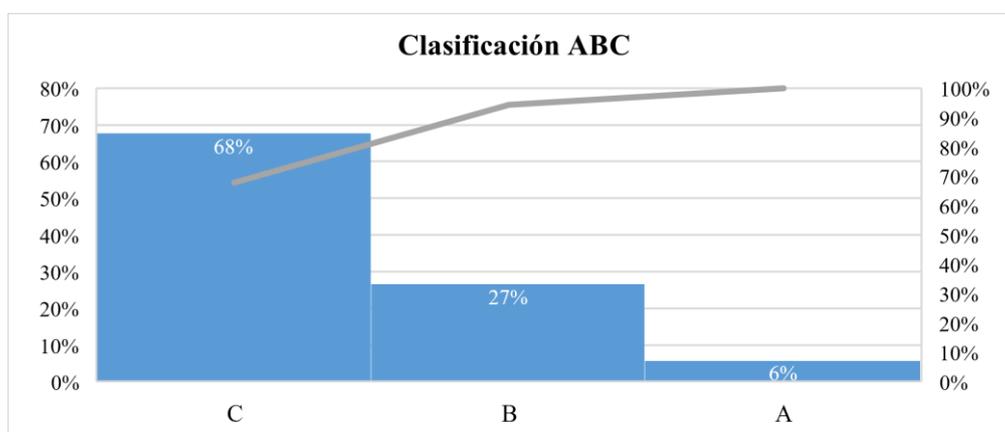
Con esta información se realizó el cálculo según la clasificación A, B, C. Tal como se muestra en la Figura 1, se observa que la categoría C tiene 84 artículos, la categoría B 33 artículos y en la A son 7 artículos.

Recordando que los incluidos en la A son altamente significativos, los B significativos o de importancia y los C de baja importancia.



**Figura 1.** Gráfico con la clasificación ABC en cantidad de artículos.  
Elaboración propia (2024).

Según el principio de Pareto, se muestra en la Figura 1, la representación de los productos por proporcionalidad, es decir, que 7 artículos representan las ventas en un 6%, 33 productos representan el 27% y 84 artículos representan el 68% del total de las ventas de los periodos en estudio.



**Figura 2.** Gráfico con la clasificación ABC en proporcionalidad.  
Elaboración propia (2024).

La clasificación ABC permitió optimizar los inventarios por medio de una planificación al menor costo y considerando los tiempos de entrega de materias primas de los proveedores. Se muestran las categorías por productos en A, B y C, según la Tabla 2.

**Tabla No. 2.**  
*Clasificación ABC por productos.*

Categoría	Vaso infantil rojo	Vaso infantil amarillo	Jarra transparente	Vaso infantil azul
<b>Categoría A</b>	Jarra mini transparente	Vaso grande rojo	Vaso grande amarillo	
<b>Categoría B</b>	Colador chico rosa	Bandeja chica verde	Tortillero verde	Pinzas mini verde
	Cucharón verde	Exprimidor de vaso rosa	Bandeja chica azul	Cucharon amarillo
	Plato sopero azul	Plato pastelero rosa	Servilletero azul	Servilletero amarillo
	Aplastador rosa	Pinzas grande morado	Cucharón azul	Aplastador morado
	Plato sopero rojo	Bandeja chica morado	Pinzas mini azul	Pinzas mini rosa
	Tortillero rosa	Pinzas mini morado	Cucharon rosa	Bandeja chica rosa
	Colador chico morado	Exprimidor de vaso morado	Cucharon morado	Plato pastelero morado
	Servilletero rosa	Servilletero morado	Plato sopero rosa	Plato sopero morado
<b>Categoría C</b>	Tortillero morado			
	Vaso grande azul	Exprimidor rojo	Vaso infantil verde	Vaso grande verde
	Salero grande amarillo/rojo	Jarra mini azul	Exprimidor verde	Salero mini azul/rojo
	Jarra mini verde	Vaso infantil rosa	Exprimidor de vaso rojo	Exprimidor azul
	Cuchara grande amarillo	Colador chico amarillo	Colador grande rojo	Jarra mini amarillo
	Salero grande verde/azul	Pinzas grande rojo	Bandeja grande rojo	Plato pastelero amarillo
	Bandeja grande amarillo	Vaso grande rosa	Aplastador amarillo	Bandeja chica rojo
	Salero mini amarillo/rojo	Plato pastelero verde	Exprimidor de vaso amarillo	Aplastador rojo
	Aplastador rojo	Vaso infantil morado	Jarra mini rosa	Tortillero amarillo
	Servilletero rojo	Plato pastelero azul	Pinzas mini rojo	Jarra azul
	Colador grande verde	Cuchara grande azul	Pinzas grande azul	Bandeja grande verde
	Exprimidor rosa	Bandeja chica amarilla	Salero mini verde/azul	Colador grande azul
	Colador chico azul	Jarra verde	Plato extendido rojo	Plato extendido rosa
	Pinzas grande verde	Jarra mini morado	Vaso grande morado	Colador grande rosa
	Exprimidor morado	Exprimidor de vaso verde	Plato extendido azul	Jarra rosa
	Plato extendido morado	Bandeja grande morado	Bandeja grande rosa	Servilletero verde
	Jarra amarillo	Cucharón rojo	Plato extendido verde	Exprimidor de vaso azul
	Pinzas grande rosa	Aplastador verde	Jarra morado	Plato sopero verde
	Colador grande morado			

Elaboración propia (2024).

Una vez que se calculó la clasificación ABC, se aplica el método Holt-Winters. En la Tabla No. 3, se especifican los valores para el cálculo del pronóstico de los próximos 4 periodos ( $L_i$ ), también se hace el cálculo del error para poder ajustar el valor promedio del pronóstico DMA, considerando que  $X_i$  corresponde al promedio de ventas de los cuatro periodos a analizar,  $L_i$  corresponde al pronóstico suavizado,  $B_i$  es la tendencia de los datos y  $Y_{i+m}$  es el pronóstico para los periodos futuros en estudio.

**Tabla No. 3.**  
*Valores de ventas promedio por el método Holt-Winters para 124 productos.*

Mes	t	$X_i$	$L_i$	$B_i$	$S_i$	$Y_{i+m}$	Error
	-2				1		
	-1				1		
	0				1		
Ene	1	165200	165200	0	1		
Feb	2	211500	177664.57	1	1.2	165200	46300
Mar	3	192000	181524.588	1	1.1	177666	14334
Abr	4	265000	203998	2	1.3	181526	83474
May	5	204000	204000	2	1.0	204000	0
Jun	6	270500	210254.165	2	1.3	242853	27647

Jul	7	212000	207611.747	2	1.0	222390	10390
Ago	8	285500	210888.787	3	1.4	269697	15803
Sep	9	216000	212266.986	3	1.0	210892	5108
Oct	10	262000	209948.642	3	1.2	273093	11093
Nov	11	217000	210639.914	3	1.0	214389	2611
Dic	12	320000	217569.718	3	1.5	285167	34833
Ene	13					221399	
Feb	14					271518	
Mar	15					224148	
Abr	16					320018	
						<b>DMA</b>	<b>22872</b>

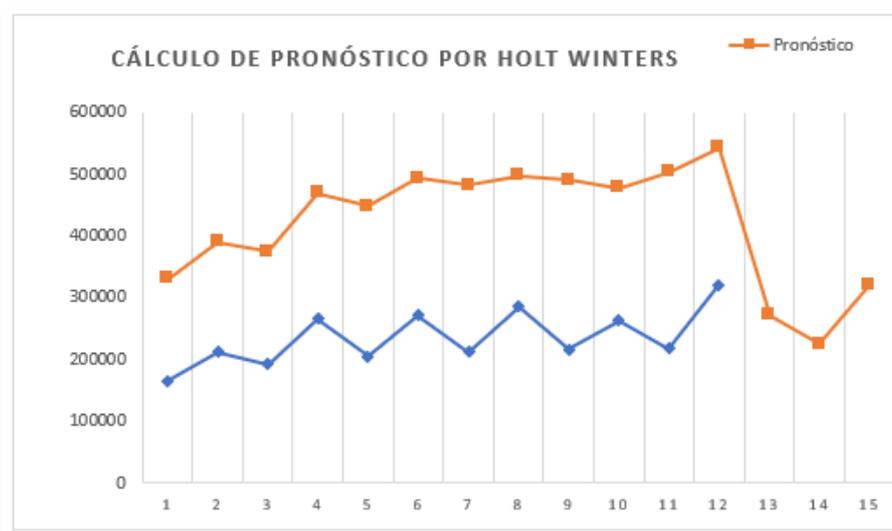
Elaboración propia (2024).

Además, con el Holt-Winters se puede conocer el Inventario de Seguridad (SS), cuando existe incertidumbre en la demanda durante el tiempo de producción, en ocasiones se presenta un agotamiento de existencia, por lo que deben tenerse unidades adicionales en el inventario (Rios et al., 2008). Para tal efecto se emplea la siguiente ecuación:

$$SS = (DMA) (SF) \quad (7)$$

Donde DMA es la desviación absoluta media de los datos de las ventas en el periodo considerado y SF el nivel de servicio de acuerdo con una distribución normal, regularmente del 90% (Riggs, 2018) (Hopeman, 2009). El Inventario de Seguridad (SS), aplicando la ecuación (7), para esta serie de datos se calculó a partir del DMA que arrojó el pronóstico, para este caso de 22,872 considerando un 90% de nivel de servicio, entonces el SS es de 20,584.8.

En la Figura No. 3, se observa el pronóstico calculado y las ventas reales para los periodos analizados, se observa la estacionalidad de 4 periodos y el pronóstico calculado a los meses siguientes.



**Figura 3.** Gráfico de Holt-Winters en caso de estudio.

Elaboración propia (2024).

## Conclusiones

Con las técnicas aplicadas de ABC y Holt-Winters, se alcanzaron soluciones óptimas para la identificación del comportamiento de ventas de los productos de la empresa caso de estudio. La integración del análisis bajo la técnica ABC en función de las finanzas de la organización según las mayores ventas por producto, ahora es de total conocimiento los productos de menor venta para la toma de decisiones e igualmente los de mayor venta para la previsión de artículos y compra de materia primas.

Por otro lado, durante el desarrollo de la investigación, se alcanzó el objetivo planeado, esto es, proponer un modelo de Sistema de control de inventario para la identificación de todos sus productos y prevenir

cualquier cambio en el flujo de materiales al momento de su adquisición. Con esta información se podrá planificar las compras de manera sistemática, considerar los espacios para el almacenamiento de las mismas, considerar el tiempo de fabricación para cada producto, ubicar los espacios destinados para el producto terminado e inclusive, planificar la logística de entrega para el cliente.

Con la técnica de Holt-Winters se identificó la cantidad de productos terminados que se requieren en el almacén para garantizar la oportuna entrega con los clientes. Además, si la empresa del caso de estudio está interesada en mejorar sus prácticas de almacen, puede generar políticas de actuación para la fabricación, almacenamiento y entrega, con el fin de disminuir los costos. La combinación de ambos procedimientos, ABC y Holt Winters, aporta al Sistema de inventarios mayor confianza en el tratamiento de los datos, ya que si bien su aplicación individual es valiosa, con el uso de ambas genera mucho menor margen de error en la toma de decisiones.

En la región oriente del estado de México, ubicación de la empresa del caso de estudio, existen empresas del orden familiar o pyme que no necesariamente cuentan con conocimiento de este tipo técnicas para mejorar su Sistema de inventarios, lo que aporta a estas grandes ventajas en el manejo de sus costos. En un futuro se recomienda, darle seguimiento a la propuesta conforme datos actualizados de las ventas y evaluar el impacto de fabricar productos que su aportación es mínima y focalizarse en los que generan mayor impacto en las ventas.

**Limitaciones:** En el desarrollo de la presente investigación, se utilizaron datos históricos y el análisis se realizó sobre éstos periodos, sin embargo si se tomaran otros, el resultado es limitativo para determinar la demanda futura por el método Holt-Winters bajo ciertos contextos.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.4>

How to Cite:

Myronenko, T., Dobrovolska, L., Shevchenko, I., & Kordyuk, O. (2024). Challenges and sustainability of CLIL implementation in Ukrainian educational establishments. *Amazonia Investiga*, 13(77), 53-65. <https://doi.org/10.34069/AI/2024.77.05.4>

## Challenges and sustainability of CLIL implementation in Ukrainian educational establishments

### Виклики та сталість впровадження предметно-мовного інтегрованого навчання у навчальних закладах України

Received: April 7, 2024

Accepted: May 25, 2024

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#### Abstract

The article analyses the issue of techniques of bilingual education by introducing CLIL comparing to ESP, EAP, EMI approaches at different levels of education – secondary and tertiary. In the article the authors studied the challenges, resilience and sustainability during the process of introduces above mentioned approaches. The CLIL approach facilitates foreign language learning by integrating language and content instruction. The authors' investigation has a theoretical bias and different scientists' point of view. By analyzing the implementation of CLIL approach and authors' experience in practical application of other approaches the comparative analysis is done that proves the priorities of using CLIL at schools and higher educational establishments.

The authors justified that CLIL is more than just language switching; it means that teaching subjects in a second language, like English, is the best way to make learning more meaningful and

#### Анотація

У статті проаналізовано питання методики білінгвальної освіти шляхом впровадження предметно-мовного інтегрованого навчання (CLIL) у порівнянні з підходами навчання англійської мови для спеціальних цілей (ESP), навчання академічної англійської мови (EAP), запровадження англійської мови як мови викладання (EMI) на різних рівнях освіти - середньому та вищому. У статті автори досліджують виклики, стійкість та сталість у процесі впровадження вищезазначених підходів. Підхід CLIL допомагає учням розуміти іноземні мови, діючи як засіб для міжпредметних зв'язків – мови та складової навчального курсу. Дослідження авторів має теоретичне підґрунтя на основі наукових поглядів вітчизняних та закордонних науковців. Аналізуючи впровадження підходу CLIL та досвід авторів у практичному застосуванні інших підходів, зроблено порівняльний аналіз, який доводить

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engaging. The benefits of CLIL in Ukrainian education system emphasize learners' fluency in both languages - Ukrainian and English, high academic achievements, achievements in communication and development of sociocultural competencies that as a result boost learners' motivation and bridge the language gap.

**Keywords:** bilingual education methods, CLIL approach, secondary education, tertiary education, academic achievements.

пріоритетність використання CLIL у школах та вищих навчальних закладах.

Автори обґрунтували, що CLIL – це інтеграція вивчення мови і предмету за навчальним планом, що робить навчання більш змістовним та продуктивним. Переваги CLIL в українській системі освіти полягають у вільному володінні учнями обома мовами - українською та англійською, високому рівні академічної успішності, застосуванні англійської мови для спілкування та розвитку соціокультурних компетенцій, що в результаті підвищує мотивацію учнів та долає мовний бар'єр.

**Ключові слова:** техніки білінгвальної освіти, предметно-мовне інтегроване навчання, середня освіта, вища освіта, академічні досягнення.

## Introduction

As Ukraine becomes more actively integrated into the economic, educational, and informational spheres of Europe, the demand for highly skilled professionals is on the rise. The educational system is evolving and experiencing significant transformations in various aspects. Consequently, there is a keen emphasis on the role of foreign languages, with educational institutions creating encouraging environments for their incorporation into the learning process to facilitate successful acquisition.

Hence, there arises a necessity to implement innovative approaches such as CLIL, EAP, EMI, and ESP. The adoption of the Content and Language Integrated Learning (CLIL) approach in the educational framework enables educators to integrate the study of English with other subjects specified in the curriculum, enriched with contemporary authentic materials.

The CLIL approach is recognized as a contemporary method for teaching subject matter through language, gaining increasing importance both in Europe and Ukraine. This significance is underscored by a quantitative analysis of educational institutions implementing CLIL across various regions of Ukraine (including Kharkiv, Mykolaiv, Poltava, Ternopil, Zaporizhzhia, etc) and Europe. Furthermore, the level of research dedicated to CLIL implementation at the master's and PhD levels serves as further validation of its importance.

Functioning as a tool for integrating content and language instruction, the CLIL approach facilitates foreign language comprehension for learners. Emphasizing the integration of subject matter with language acquisition, CLIL positions the teacher as a facilitator while learners engage in comprehensive language learning encompassing listening, reading, speaking, and writing. This cognitive process fosters the development of integrated mental abilities and effective learning skills. Additionally, CLIL encourages the cultivation of intercultural communication skills by exposing learners to different cultural perspectives, aligning with the Ministry of Education and Science policy on multilingual education in Ukraine, particularly regarding English language instruction. This approach is in line with the principles outlined in the New Ukrainian School (NUS) and the Methodological Recommendations for Ensuring Quality Learning, Teaching, and Use of English in Higher Education Institutions of Ukraine.

## Literature Review

Teacher professional growth is a crucial aspect of educators' careers, involving the enhancement of individual abilities, personal performance, employment prospects, and career progression in implementing modern approaches in education. Being the lingua franca, the English language became dominant in every sphere - content and level of education – secondary, higher education.

English for Academic Purposes (EAP) is dedicated to guiding learners in the appropriate application of language for scholarly endeavours and research. Being used within the framework of ESP (English for

Specific Purposes), this field has evolved in tandem with the growing population of international learners pursuing advanced studies in English (Hyland, 2014).

EAP encompasses a wide array of academic communicative practices, including pre-university, undergraduate, and postgraduate instruction, ranging from materials design to lectures and classroom activities. It also involves classroom interactions such as tutorials, feedback sessions, and seminar discussions, as well as various research genres like journal articles, conference papers, and grant proposals. Moreover, EAP addresses student writing across assignments, exams, and dissertations.

Unlike general English courses, which typically emphasize speaking and listening skills, EAP prioritizes reading and writing. Additionally, EAP courses concentrate on teaching formal academic genres rather than the conversational and social genres typically covered in general English courses. This educational approach places the learner and their specific academic context at the forefront, emphasizing tailored language instruction to support academic success (Dudley-Evans & St. John, 1998).

The term EAP emerged in 1974 within the realm of English Language Teaching (ELT) as a minor component. Over the years, its significance has dramatically increased, largely propelled by the globalization of higher education and the widespread adoption of English as the primary language for academic discourse. EAP established its own professional organization in 1972, initially named SELMOUS (Special English Language Materials for Overseas University Learners), which underwent a name change in 1989 and is now recognized as BALEAP (The British Association of Lecturers in English for Academic Purposes), dedicated to fostering the professional growth of EAP practitioners. Furthermore, EAP boasts its own dedicated professional publication, the *Journal of English for Academic Purposes* (JEAP), inaugurated in 2002.

Currently, there exists a multitude of terms denoting the practice of instructing core curriculum subjects in English. This pedagogical approach is alternatively referred to as EMI (English as the Medium of Instruction), CLIL (Content and Language Integrated Learning), or CBT (Content-Based Teaching). However, some individuals perceive these labels as distinct and not interchangeable.

English Medium Instruction (EMI) refers to the use of the English language to teach academic subjects (other than English itself) in countries where the first language of the majority of the population is not English. CLIL and EMI approaches are similar in the sense that they are both forms of bilingual education but CLIL means teaching content through any foreign language while EMI means teaching content to learners who are proficient in English (at least C1 proficiency level). English as a Medium of Instruction (EMI) is the use of the English language to teach another subject. It differs from Content and Language Integrated Learning (CLIL) in that there are no explicit language learning aims, but the focus is solely on teaching the subject content.

ESP, or English for Specific Purposes, is a method of language instruction wherein the selection of content and instructional methods is determined by the learner's purpose for acquiring the language. In essence, ESP is not defined by any specific language outcome, but rather by its focus on tailored language teaching guided by explicit and identifiable learning objectives (Hutchinson & Waters, 1987).

We consider that CLIL goes beyond mere language switching; it embodies the belief that teaching subjects in a second language, such as English, is the most effective approach to learning with greater meaning and motivation. This approach is grounded in an enhanced awareness of the second language, requiring teachers to ensure their understanding the key structures and vocabulary relevant to the subject matter. Moreover, CLIL emphasizes the development of cognitive skills and cultural awareness, which are believed to be essential by most scientists.

The primary motivation behind implementing CLIL is typically to increase the amount of time dedicated to second language acquisition within the school timetable. However, there may also be more specific reasons for its implementation. Many scientists consider a high level of English proficiency to be a valuable life skill, leading governments and education authorities to prioritize enabling learners to directly pursue tertiary or vocational qualifications without the need for additional language courses.

The primary rationale for implementing CLIL often revolves around expanding the time allocated within the curriculum for second language acquisition. However, there exist other more targeted motivations. The most notable is the widespread recognition of high English language proficiency to be a crucial life skill.

Researchers, including renowned CLIL expert David Marsh, declared convincing arguments regarding the advantages of the bilingual or multilingual brain. Evidence suggests that language learning itself contributes to enhanced cognitive development, further underscoring the value of CLIL and similar language immersion approaches.

The term “CLIL” was introduced by David Marsh, who in 1994 outlined an integrated approach to foreign language learning. CLIL, which stands for Content and Language Integrated Learning, entails teaching subjects or components of subjects in a foreign language with the aim of simultaneously acquiring both content knowledge and proficiency in the foreign language (Marsh, 2012). The concept of “dual focus” in CLIL implies that it operates on two levels. It adopts an interdisciplinary approach that integrates subject matter with language instruction. Compared to STEM education, CLIL offers broader opportunities for the integration of various school subjects.

In its turn I. Knysh et al., (2024) “STEM education is aimed at maintaining a constant interest and encouraging learners to pursue a career and their own research in a certain field”.

Among the foreign researchers of CLIL we should single out such scholars as M. Allen, D.Coyle, H. Collins, D. Graddol, D. Marsh, M. Heyer, P. Mehisto, D.Wolff and others.

D. Marsh et al., (2011) believe that “CLIL teaching refers to situations where disciplines are taught through a foreign language with several focused goals, namely: learning the content of a foreign language and simultaneously learning it itself”.

P.Ball & Lindsay (2012) defines “CLIL as a method of bilingual education where both the curriculum content (e.g., science or geography) and the language are taught alongside. Unlike traditional secondary education, CLIL does not presuppose that learners possess the necessary level of proficiency in a foreign language to comprehend the curriculum content”.

M. Heyer (2000), adheres to the idea that “CLIL leads to a decrease in subject competence or imperfect understanding of the subject by learners, as teachers simplify the content of the curriculum in advance”.

Fernandes states that CLIL represents a versatile approach to foreign language acquisition. Unlike alternative teaching methodologies, CLIL proves effective as it influences learners’ interest in a particular subject to drive motivation for learning a foreign language. Within the framework of CLIL approach, the foreign language serves as the medium of instruction for acquiring subject content, thereby integrating language learning with content acquisition. This reciprocal relationship between language and content facilitates foreign language learning through authentic communicative contexts. Fernandes states that “CLIL is a flexible method with which to learn a foreign language”.

According to D. Coyle, P. Hood, D. Marsh, (2010), the term “content” in foreign language instruction relates to specific subject knowledge, such as science or art. Within the context of CLIL, the selection of content varies based on particular objectives. Considerations must include the availability of qualified instructors, learners’ proficiency levels, their language skills, and the learning environment. Content in CLIL instruction may derive from conventional school subjects like physics, chemistry, mathematics, geography, or music. It can also encompass national curriculum topics or projects such as ecosystems and global warming, and may even extend to cross-curricular or interdisciplinary themes. Thus, CLIL provides opportunities, both within and beyond the standard curriculum, to enhance knowledge and skills, with careful attention given to learners’ cognitive engagement”.

Dr. Heike Roll (2019), Professor of the Institute of German as a Second Language at the University of Duisburg-Essen, Germany, states that “the most unified definition of CLIL today is the following: a didactic methodology that allows learners to develop foreign language linguistic and communicative competence in the same learning context as the formation of general knowledge and skills.” H. Roll assures that “the use of CLIL methodology in the educational process has two goals, namely: studying a professional subject by means of a foreign language and a foreign language through a professional subject”.

Therefore, the essence of CLIL lies in its instructional approach, wherein a foreign language instructor integrates interdisciplinary subjects into language classes or delivers various subjects in a foreign language. Consequently, the foreign language serves as both a tool for communication and a vehicle for cognitive development, blending learning in both native and foreign languages into a unified process. It's worth noting that CLIL is not a novel concept in Europe.

Ch. Dalton-Puffer (2007) suggests that learners employ to using a non-native language when facing conceptual difficulties, though this approach does not always solve the language problem. What may initially appear as a barrier for a learner can actually be a valuable chance to better understand subject-specific concepts. It's essential to recognize that students in CLIL may encounter difficulties with exams in various subjects, except in instances where subjects such as a foreign language and native language literature are combined.

**The purpose of the article** is to analyse proposed approaches and then find the ways of CLIL approach implementation as the most suitable for secondary and tertiary education in Ukraine.

### Methodology

The study used research methods that encompassed a systematic and theoretical analysis of scientific literature on the application of CLIL in both European and Ukrainian contexts. This methodology entailed a comprehensive review of existing scientific works and publications pertaining to the implementation of CLIL practices.

The issue of CLIL implementation in Ukraine has been studied by such Ukrainian scholars as A. Artsyshevska, S. Bobyl, O. Khodakovska, N. Kuzminska and others.

N. Kuzminska et al. (2019) suggests that within the CLIL framework, language acquisition takes on a more purposive nature, with language serving as a tool for accomplishing specific communicative objectives. The main advantages of using CLIL in the classroom is the focus is on the content where learners have the opportunity to learn a foreign language in practice. Learners gain deeper insights into the culture associated with the target language, fostering the development of socio-cultural competence. Engaging with a substantial amount of language material enables learners to fully immerse themselves in a natural language environment. Exploring diverse topics facilitates the acquisition of specialized terms and language structures, enriching learners' vocabulary with subject-specific terminology and preparing them for further application of acquired knowledge and skills. Simultaneously studying a foreign language and a non-language subject serves as an additional way for accomplishing educational objectives, offering positive outcomes for both language acquisition and subject learning.

Both foreign and Ukrainian scholars highlight four characteristics of the CLIL approach that share similarities with other existing methods of foreign language learning.

The first characteristic is the naturalistic and implicit nature of CLIL. This aspect involves an emphasis on communication opportunities, resulting in increased exposure to external input. A variety of information fosters improved learning outcomes.

The second characteristic of CLIL is its cooperative learning style. Through cooperative learning, learners collaborate in small groups to accomplish tasks, fostering an environment that reduces anxiety, enhances motivation, and encourages active interaction among learners. Collaborative interaction within teams enhances learners' communication skills in foreign language learning.

The third characteristic of CLIL is authenticity, which enables learners to develop their ability to address real-life communication challenges. Authentic-oriented learning involves selecting materials that reflect real-world language usage.

The fourth characteristic of CLIL is its flexibility. The CLIL approach can be adapted to various curricula to align with the content of subject studies.

The reason for the emergence of the CLIL approach in tertiary education is the new challenges faced by graduates in their professional activities. This has led to the need to revise curricula and add professionally oriented courses in order to master a foreign language (Artsyshevskaya et al., 2021).

The researchers emphasize that “CLIL’s flexibility is supported by a theoretical framework commonly referred to as the 4C model. The 4C model is a holistic approach that integrates content, communication, cognition and culture”.

Y.R. de Zarobe (2015) considers that successful CLIL operation encompasses five dimensions: advancement in content knowledge, skills, and comprehension; engagement in communicative interactions; development of effective communication skills; and cultivation of heightened intercultural awareness. In this regard, CLIL offers distinct advantages supported by substantial evidence: enhanced language proficiency, heightened motivation, and applicability to learners of varying abilities.

CLIL approach is highly sought-after in contemporary education, as it combines the instruction of subject-specific content with foreign language learning. Modern secondary educational institutions may choose for either “soft” CLIL, where specific topics are taught within a language course, or “hard” CLIL, where subjects are exclusively taught in English. While hard CLIL focuses solely on teaching a particular subject in English, soft CLIL utilizes English to deliver content with the aim of achieving language-based objectives.

I. Tkalia, N. Cherkashyna, and Z. Ognivenko (2020) emphasize that “CLIL provides a combined coverage of content and language, which allows improving learners’ communication skills in real-life situations. The main advantage of CLIL-based teaching methods is the high degree of motivation gained by learners, as language learning is inextricably linked to the development of their professional competencies”.

On the basis of theoretical analyses CLIL can be divided into “soft” and “hard” CLIL. These two models describe different emphases within CLIL instruction. “Soft CLIL” has an emphasis on language learning alongside content learning. In soft CLIL, language development is often seen as the primary goal, with content learning serving as a context for language acquisition. This approach prioritizes language support and scaffolding throughout the lesson to ensure that learners can access and engage with the content effectively while also developing their language skills.

In this turn “hard CLIL” focuses more on content learning, with language learning serving as a secondary goal. In hard CLIL, the primary objective is for learners to acquire knowledge and skills related to the subject content, with language development occurring naturally as a result of engaging with the content. While language support is still provided in hard CLIL, it may be less extensive compared to soft CLIL and the emphasis is more on delivering content instruction.

Teachers often adapt their CLIL instruction based on factors such as the proficiency levels of their learners, the specific content being taught, and the learning objectives of the lesson. Both soft and hard CLIL approaches have their positive features and challenges and can be effective depending on the context and goals of the curriculum.

L. Budko, G. Maksymovych & T. Shulga (2024) believe that among the various forms and models for integrating a foreign language with subject disciplines, it is challenging to select one that perfectly suits a specific higher education institution. This is especially true when considering the institution's unique characteristics while avoiding significant organizational changes. Thus, based on the degree of immersion, three CLIL models are known: soft (language-led), hard (subject-led), partial immersion”.

The researchers explain that “the initial model concentrates on the linguistic aspects within a specific context, while the second model entails dedicating 50% of the curriculum for subject-based instruction in a foreign language. The third model serves as an intermediate approach and is employed when certain modules of the educational program are delivered in a foreign language”.

Researchers believe that employing CLIL approach fosters increased motivation in learning a foreign language. This is attributed to language serving not only as a pool of knowledge but also as a medium of communication between learners and teachers, as well as among peers. Engaging with various thematic units enables learners to enhance their reading, writing, listening, and speaking abilities, while also

enriching their vocabulary with professional terminology. This serves as a strong basis for applying acquired knowledge and skills in future professional career.

Modern researchers identify several didactic principles that characterize CLIL approach:

1. Content integration - CLIL seeks to integrate language learning with subject content, fostering simultaneous development in both areas.
2. Language development - CLIL aims to enhance language proficiency while learners engage with subject-specific content, enabling them to communicate effectively in various contexts.
3. Cognitive challenge - CLIL tasks are designed to provide cognitive challenges that stimulate critical thinking, problem-solving, and deeper understanding of subject matter.
4. Learner-centered approach - CLIL promotes active learner involvement, encouraging learners to take ownership of their learning process and engage actively in activities.
5. Authentic contexts - CLIL emphasizes learning within authentic contexts, where learners encounter real-life situations and use language in meaningful ways relevant to their academic and professional lives.
6. Scaffolded support - CLIL provides scaffolded support to learners, offering appropriate assistance and guidance to help them comprehend complex subject matter and language structures.
7. Assessment - CLIL assessments are associated with both content and language objectives, ensuring that learners' language proficiency and subject knowledge are accurately evaluated.

These principles of CLIL approach guide educators in implementing effective teaching strategies that promote integrated language and content learning.

## Results and discussion

The use of CLIL approach in secondary and tertiary education allowed us to pay attention to the problems associated with its implementation in the educational process. The main and most important problem today is the need to develop specific professional competencies of teachers who could work with the CLIL.

The primary benefits of employing CLIL approach are:

- Enhanced motivation for foreign language acquisition;
- Directed progression in mastering a foreign language for specific communicative objectives;
- Emphasis on cultivating skills for professional communication in a foreign language;
- The interactive and collaborative nature of CLIL fosters learners' self-assurance.
- Cultivation of cultural and intercultural understanding to deepen knowledge of the target language's culture;
- Immersion in a purposefully constructed language environment;
- Acquisition of specialized terms and language structures essential for particular subjects, leading to an expansion of subject-specific vocabulary;
- Elevation of critical thinking abilities and the development of rapid comprehension skills when engaging with new material;
- Flexibility in implementing the CLIL methodology across diverse educational formats and learning contexts;
- Creation of opportunities for educators to integrate foreign language learning seamlessly with various non-language subjects.

According to the methodologists CLIL (M.M. Adrián and M.J.G. Mangado, M.O. Douglas, E. Dafouz & A. Hibler) faces some benefits and challenges. To positive side of CLIL introduction we can place mastering foreign language proficiency. M.M. Adrian & M.J.G. Mangado (2015) state that immersing learners in subject content taught in a foreign language through CLIL encourages natural and meaningful language use. Instead of depending solely on memorization and artificial examples, CLIL requires learners to actively apply language skills in real academic settings. This approach not only enhances communicative language development but also fosters critical thinking and cognitive engagement as learners cope with complex, advanced subject matter.

Despite the widespread positive feedback and successful global implementation of CLIL several challenges that require resilience remain:

- CLIL class schedules must encompass three critical stages simultaneously: the content of the discipline, the foreign language, and its application in educational contexts;
- Recognizing the foreign language as both a means and as a purpose of the learning process;
- A shortage of “subject and content specialists” capable of conducting comprehensive integrated lessons in a foreign language effectively;
- The need to adapt and create educational materials that correspond to the requirements of integrated learning (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2006).

E. Dafouz & A. Hibler (2013) emphasize that providing teachers with the essential skills and knowledge to effectively implement CLIL is crucial for its success. High-quality CLIL instruction necessitates specialized teaching strategies that integrate language and content learning.

M.O. Douglas (2017) states that the complexity of linguistic nuances and syntactic structures can deter language acquisition for CLIL learners. Without sufficient scaffolding and support, the language demands of the content can overwhelm learners, causing cognitive overload in both content and language learning. Careful assessment and responsive support are essential to provide learners with the necessary language assistance. Without this, CLIL could obstruct the language development.

According to P. Moore & F. Lorenzo (2015) CLIL is not a prescriptive method but rather an approach grounded in an epistemological perspective that emphasizes the symbiosis of language and content. The essence of CLIL lies in this integration. Designing a CLIL pathway involves reflecting on and developing a theory or understanding of language. However, for many content teachers, the primary focus in CLIL implementation remains the material itself.

Challenges in implementing CLIL implementation include insufficient awareness and comprehension of the CLIL approach and its principles among educators at both school and university levels, alongside a shortage of suitable materials aligning with its dual objectives. There is a need for more structured teacher training programmes, as well as methodological webinars and seminars. Learners often show low English proficiency levels, struggle with interpreting content texts, while teachers may lack practical experience and confidence in areas such as lesson planning, time management, pronunciation skills, and accessing adequate resources. Additionally, there is the challenge of engaging with parents effectively. Despite these obstacles, CLIL presents new opportunities for learners, particularly at faculties where English isn't a primary focus.

For future school teaches of different subjects it opens new ways for communication with their colleagues in other countries, that is global communication in educational community.



**Figure 1.** CLIL Implementation and Risks.

Figure 1 shows interconnection of three stages of CLIL implementation in secondary and tertiary education.

It is possible to distinguish the following challenges associated with the process of implementing CLIL approach: lack of the required number of trained specialists; lack of appropriate training and professional development of specialists who would be able to work according to the CLIL approach; lack of educational material and difficulties in its selection and adaptation; overcoming parents' negative attitude to the use of the methodology of subject and language integrated teaching in non-language lessons.

Resilience presupposes: life challenges; learners’ ability to study; self-esteem and confidence; self-efficiency and ability to overcome challenges; social problem-solving approaches; learning environment and tools.

Sustainability means: concentration of content, communication, cognition and culture; dual focus on learners’ skills and process of learning while content knowledge and language obtaining.

As for our analyses of the situation with CLIL implementation in Mykolaiv region it should be mentioned that by introducing CLIL approach it is obviously necessary to have support from local educational authorities and school directory.

According to the questionnaire developed for CLIL teachers of Mykolaiv and Mykolaiv region which was carried out by the scale from 1 till 10 the following results were obtained and presented in the Table 1.

**Table 1.**  
*CLIL implementation questionnaire at Mykolaiv and Mykolaiv region*

Positive feedback					Challenges
Improve communication skills (speaking fluency) in L2	Improve social interaction skills in L2	Increase motivation	Improve content knowledge in L2	Improve cognitive abilities	Specific
7	10	8	8	9	1) Balancing content and language instruction; 2) Developing suitable materials; 3) Support of local and directly educational establishments authorities

Analysing the results of the questionnaire proposed to the participants of “CLIL Methodology Course” on MNU Moodle it should be mentioned that secondary educational establishments as well as higher educational establishments have the same similarities and differences of CLIL application teaching different courses at different levels.

Similarities in CLIL application lie in the following:

- Language immersion — learners are immersed in the target language through subject content, promoting natural and meaningful language use;
- Integrated learning – combination of content and language learning requires learners to simultaneously acquire subject knowledge and language skills;
- Focus on communication – the studied content encourages learners to use the language actively in academic and real-world contexts;
- Interdisciplinary approach – CLIL involves integrating multiple disciplines, fostering a comprehensive learning experience that connects different areas of knowledge.
- Methodology – teachers need to use specialized strategies that balance content and language instruction at different levels of study, such as scaffolding, modeling, and interactive activities.

Differences in CLIL application can be viewed as follows:

1. Complexity of content for different levels:

- At secondary level the content is generally simpler and more concrete, focusing on basic concepts and vocabulary;
- At higher level the content is becomes more complex and abstract, involving advanced theories, specialized terminology, and critical analysis;

2. Language proficiency expectations:

- At secondary level learners are often at a beginner or intermediate level of language proficiency that requires more foundational language support;

- At higher level learners have higher language proficiency that allows to use more sophisticated language;
3. Methods of assessment:
    - At secondary level assessments are often formative, focusing on basic comprehension and language use through simple tasks and activities;
    - At higher level assessments are more summative and difficult, including essays, presentations, and exams that require in-depth understanding and critical thinking;
  4. Teacher proficiency and knowledge:
    - At secondary level teachers often need to have strong skills in basic language teaching and classroom management;
    - At higher level teachers are required to have deep content knowledge and the ability to facilitate high-level academic discourse in the target language;
  5. Learning materials:
    - At secondary level materials are more visual, interactive, and accessible, using pictures, games, and simple texts to engage younger learners;
    - At higher level materials are more text-based and complex, including academic articles, research papers, and technical documents relevant to the subject matter;
  6. Learner autonomy:
    - At secondary level the process of learning is more guided with teachers' direct instruction and support;
    - At higher level the process of learning is more autonomous and learners are expected to take more responsibility for their learning and engage in independent research and study.

Collaboration with foreign educational establishments and participation in Erasmus+ projects (the EU's programme to support education, training, youth and sport) fosters CLIL implementation in Ukrainian educational establishments at different levels of study.

Further and successful implementation of CLIL depends significantly on elaborating manuals on different educational courses and support of the policymakers. One more step to fruitful CLIL application is creation of CLIL hubs to support educators in CLIL implementation by methodological instructions and manuals. The steps of creating CLIL hubs and developing CLIL curricula are described by D. Marsh, P. Mehisto, D. Wolff, M.J. Frigols Martín (2011) in the manual "The European Framework for CLIL Teacher Education" that aims to offer principles and ideas for working out CLIL professional development curricula. It is also serves as a tool for reflection, providing a conceptual approach for practical usage.

As for the limitation of the studies presented in the article it is necessary to pay attention to the percentage of theoretical and practical basis not to be disconnected between classroom activities and real situation application. Summing up, teachers should pay more attention to the practical use of CLIL to engage learners in effective learning (Lokshyna et al., 2015). To prevent a disconnect between classroom activities and real-world applications in CLIL application, a teacher should follow such methodological strategies:

1. To design activities based on case studies and project work that reflect real-world scenarios related to the content matter;
2. To incorporate authentic materials such as news articles, videos, podcasts, and other media that professionals in the field might use;
3. To implement interdisciplinary projects that require learners to apply knowledge and skills from multiple subjects, similar to real-world contexts;
4. To design assignments that require learners to solve real-life problems or create products that have practical applications outside the classroom;
5. To use digital tools and platforms that professionals use that allow learners to know standard technology and practices;

6. To provide continuous feedback that highlights the practical applications of learners' work and how it connects to real-world expectations and standards;
7. To encourage collaborative projects that is based on teamwork in professional settings, helping learners develop communication and collaboration skills;
8. To incorporate reflective practices where learners analyse how their classroom learning can be applied in real-life situations, fostering a deeper understanding of the relevance of their studies;
9. To adapt language instruction to the specific vocabulary, structures, and genres relevant to the content matter that ensures real life communication;
10. To ensure assessments reflect real-world tasks and applications, such as presentations, reports, or portfolios that demonstrate practical skills and knowledge.

Considering that higher education reform in Ukraine is currently in a transitional phase, secondary schools are already actively implementing CLIL approach with integrated lessons. However, there is still a shortage of highly trained staff - teachers with sufficient professional and linguistic competencies. Therefore, the Germanic Philology Department at V.O. Sukhomlynskyi National University of Mykolaiv employs partial immersion of CLIL while teaching professionally oriented programmes at different levels of study. This involves teaching certain fundamental disciplines in English, which enhances learning motivation, development of communication skills, and intercultural awareness. Integrating English language into professionally oriented classes boost learners' motivation, making learning process more deliberate and intentional. Current research on CLIL emphasizes the learner's role in independently shaping their own needs and interests. Focusing on the context, abstracting from linguistic issues, and avoiding constant comparisons between native and foreign languages are crucial steps in overcoming language barriers. In the context of Ukrainian didactics, CLIL involves interdisciplinary connections and relies on creating an artificial foreign language environment to facilitate language immersion in the educational process.

When implementing CLIL approach in non-language specialties, it is important to note that working with professionally oriented texts using immersion helps uncover the content and meaning of these texts. Before reading, learners make assumptions and propose hypotheses, which are then compared with the data and evidence as they read. With a significant amount of information on their specialization, learners can guess the text content based on their knowledge. Subject knowledge is primary, as learners often lack vocabulary needed to fully understand foreign language texts in their professional field of study. However, having a strong grasp of the subject matter allows them to infer the meaning of words, phrases, and sentences from the context. When learners study texts in a foreign language related to their professional field, they do not need extensive vocabulary because CLIL supports text comprehension, boosting learners' confidence and self-assessment.

The methodical organization of CLIL lessons can vary based on the training content, still several stages can help plan an effective CLIL lesson:

- Choose an engaging topic for language specialties, for other majors follow the curriculum guidelines;
- Identify key vocabulary words to focus on, starting with 6 to 10 words initially, and gradually increasing to 20 depending on the learners' level;
- Decide what specific grammatical structures are to be used in the lesson;
- Create or select educational material related to the topic taking into account that CLIL lessons generally incorporate all aspects of language learning, with special emphasis on reading and listening, using authentic texts such as magazine articles and online content;
- Use Graphic organizers to visually represent knowledge, concepts, ideas, and their relationships;
- Assign creative tasks related to homework or class activities, such as projects, cases, essays, and other written and oral assignments. These tasks help learners personalize the information, enhancing psychological assimilation of the content.

## Conclusion

The Ukrainian education system highlights the following benefits of CLIL: employing a foreign language in authentic contexts to address genuine professional challenges, fostering a comprehensive and integrated understanding of the subjects studied, optimizing classroom time, gaining deeper insights into the core issues, and enhancing learners' motivation.

The successful application of CLIL approach in Ukraine can be achieved by following such prerequisites:

- 1) Using English instruction in preschool educational settings;
- 2) Revising English language curricula for both secondary and tertiary education;
- 3) Integrating the “CLIL Methodology” course into the curriculum for future teachers; professional development;
- 4) Implementing CLIL approach for teaching English at all pedagogical and non-pedagogical disciplines;
- 5) Organizing professional development courses at Ukrainian higher education institutions with issuing certificates for both language and subject teachers. Language instructors can enhance their understanding of English instruction using CLIL, while subject teachers can refine their English proficiency and familiarize themselves with the fundamental principles of content and language integrated teaching.
- 6) Establishing digital CLIL lesson plans, methodological resources, and electronic textbooks tailored for teachers across pedagogical and non-pedagogical specialties;
- 7) Establishing language immersion centers at secondary and tertiary educational establishments institutions in Ukraine, with corresponding funding to support their operations.

By implementing CLIL in secondary and tertiary education we come across some challenges, including the need for comprehensive teacher training, the development of appropriate instructional materials, ensuring equitable access to CLIL programmes, and addressing potential resistance to change among stakeholders. Despite these challenges, the potential benefits of CLIL in promoting language proficiency, academic achievement, and global competence make it a promising approach for enhancing education in Ukraine.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.5>

How to Cite:

Herasyenko, O., Hrytsai, N., Karskanova, S., Pliushch, V., & Protsenko, I. (2024). Development of research competence in university students through cloud-oriented technologies: a pedagogical experiment. *Amazonia Investiga*, 13(77), 66-80. <https://doi.org/10.34069/AI/2024.77.05.5>

## Development of research competence in university students through cloud-oriented technologies: a pedagogical experiment

### Розвиток дослідницької компетентності студентів університету за допомогою хмарно-орієнтованих технологій: педагогічний експеримент

Received: April 2, 2024

Accepted: May 30, 2024

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#### Abstract

This article explores the content and main directions of scientific and research activities in higher education. It highlights the key types of research work and conceptual tasks undertaken in these institutions. The study clarifies the interconnected elements, components, principles, and priority areas for organizing, developing, and enhancing the effectiveness of students' research activities. It emphasizes the need to integrate creative methods and cloud-oriented technologies into higher education to foster the creative abilities of future professionals. To assess the effectiveness of these approaches, a pedagogical experiment was conducted. The hypothesis posited that a well-organized research process in higher education institutions leads to a high level of research competence in senior undergraduate and graduate

#### Анотація

У статті розкрито зміст та основні напрями науково-дослідницької діяльності. Виокремлено основні напрями, види науково-дослідницької роботи та концептуальні завдання наукової діяльності в закладах вищої освіти. З'ясовано взаємопов'язані елементи, компоненти, принципи, пріоритетні напрями організації розвитку та підвищення результативності науково-дослідницької діяльності студентів. Наголошено на необхідності упровадження в освітній процес вищої школи креативних методів та хмарно орієнтованих технологій, які спрямовані на підвищення творчих здібностей майбутніх фахівців. З метою перевірки ефективності організації експериментальної роботи студентів був проведений педагогічний експеримент. Гіпотеза заключалась у твердженні, що результатом якісної організації освітнього

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students. During the experiment, cloud-based technologies and innovative research methods and forms were implemented in university education.

**Keywords:** research activities, cloud-oriented technologies, quality of education, higher education institutions, research competence.

процесу в закладах вищої освіти науково-дослідної роботи є високий рівень сформованості дослідницької компетентності в студентів старших курсів бакалаврського та магістерського рівнів. Під час екстериментального дослідження здійснено впровадження у практику університетської освіти хмаро орієнтовані технології та розроблені нами методи і форми науково-дослідної роботи студентів.

**Ключові слова:** науково-дослідницька діяльність, хмаро орієнтовані технології, якісна організація освітнього процесу, заклади вищої освіти, дослідницька компетентність.

## Introduction

For a modern graduate of a higher education institution, the formation of readiness for scientific and research activity is relevant today (Varava, 2021).

In order to solve the task of training a competitive specialist in modern conditions, higher education institutions need to pay attention to the development of research skills and creative initiative in students, since scientific and research activities form in competitive specialists the ability to analyze, the need for continuous education, the ability to make decisions, educate independence, cognitive activity, flexibility of thinking, that is, it forms the research competence of students by means of cloud-oriented technologies, which is current today because the labor market requires the formation of only specialists with a high level of professional competence, competitive and ready for self-improvement, capable of generating new ideas, analyzing, researching, adequately responding to changes in the social and professional sphere, to act independently and creatively, to think, to grow professionally, Therefore, the introduction of new educational technologies is now necessary to form the research competence of students, in particular, cloud-oriented technologies that are current today and are aimed at increasing the creative abilities of future specialists (Povidaichyk et al., 2020).

Taking into account the development of society, there is a growing need for specialists ready to analyze, search, and systematize information; in specialists with innovative, non-standard thinking. The formation of students' research competence, which is current today, reflects the trends of modern education and is aimed at increasing the creative abilities of future specialists, and contributes to the individualization of the educational process and the development of student's creative abilities (Khromchenko, 2021).

The analysis of available cloud-oriented multimedia educational resources demonstrated the overwhelming lack of quality control of these resources and the unsystematic nature of their introduction into the educational process. Determining the quality of cloud-based educational resources and developing methodological recommendations for their use for teaching students' research competence is an urgent task.

The analysis of the theory and practice of the researched problem revealed the following contradictions between:

- The global digital transformation of education and the unpreparedness of higher education institutions of Ukraine for the full implementation of digital technologies in the educational process;
- The change of classical means of education in accordance with the needs of students and the insufficient level of preparation of scientific and pedagogical workers for the design and implementation of cloud-oriented educational resources in the educational process;
- Updated requirements for teachers' competencies and graduates' unpreparedness for these changes;
- The availability of freely distributed multimedia educational resources and the lack of a well-founded methodology for their use during student education.

The application of such a cloud-oriented environment in the educational process is currently a topical issue of the theory and methodology of using ICT in education. Based on this, we considered the following questions in the article:

1. Content and main directions of scientific research activity.
2. Main directions, types of research work, and conceptual tasks of scientific activity in institutions of higher education.
3. Interrelated elements, components, principles, priority areas of organization, development, and improvement of the effectiveness of scientific research activities of students.
4. Creative methods and cloud-oriented technologies aimed at increasing the creative abilities of future specialists.
5. Experimentally tested the development of research competence of university students with the help of cloud-oriented technologies.

### Literature Review

In modern conditions, there is a need to train a competitive specialist. In this regard, attention is currently being paid to the scientific and research activities of students in the process of professional training.

In the context of scientific-subject foreign language training, R. Pavliuk (2016) theorizes the approaches and views of modern scientists to the design of the system of scientific and research activities of students, offers actual ideas of scientists regarding the development of pedagogical conditions for the organization of scientific and research activities and substantiates modern approaches to scientific and research activities of students, suggests the implementation of the developed pedagogical conditions for the organization of students' research activities, determines the advantages and identifies the shortcomings in general approaches to the organization of students' research activities.

On the principles of academic integrity, I. Varava (2021) shows the peculiarities of the implementation of pedagogical support for the formation of the readiness of future specialists for scientific and research activities. The scientist draws attention to the importance for the student of the formation of readiness for scientific and research activity and singles out the most important condition of scientific and research activity – compliance with the principles of academic integrity.

O. Doronina (2017), engaged in the training of a specialist in the field of economics and management, determines the directions of development and substantiates the role of the student's scientific activity in the formation of professional competencies in modern education, and defines the priority competencies for employees in the field of economics and management for the near future, defines the forms of scientific activity of students, which contribute structured by types of relevant skills and the formation and development of professional skills. The principles and principles of the development of students' scientific activity are revealed and priority directions for its improvement in higher education institutions are proposed, which will contribute to the strengthening of intellectual potential and the activation of the labor market.

O. Bulvinska, N. Divinska, N. Diachenko, O. Zhabenko, I. Lyniova, Yu. Skyba, H. Chornoivan, & O. Yaroshenko (2016) substantiated the methodological approaches and conceptual foundations (based on the historical discourse of foreign experience) for the implementation of scientific research activities of subjects of the educational process of universities; revealed the stages of formation and the essence of the educational environment of universities, singled out approaches to research training in foreign countries, the main components of the development of research competence, the methodology of teaching based on research, showed the main mechanisms of the development of a researcher's career in the higher education system, proved the effectiveness of forms of approbation of the concept of implementation research activity at the master's level of higher education applicants.

The study of O. Khromchenko (2021), who singled out the main components of the research activity of training competitive specialists, proved that "the scientific and research activity of future specialists is a type of independent creative activity of a search nature, which students perform under the leadership of a teacher of a higher education institution to acquire and generalize knowledge, developing creative abilities and research skills, creating internal motivation for learning, forming independence as character traits, willpower, ensuring the culture of scientific work". O. Povidaichyk, M. Herych, & M. Povidaichyk (2020) pay attention to the development of students' research skills, creative initiative, the need for continuous education, the ability to make and analyze decisions, the education of flexibility of thinking, cognitive activity, independence, that is, the formation of key professional competences through the introduction of scientific research activities into the educational process, involving students from the first years, to expand

the ideas of future professionals about scientific research in the context of the future profession, creating conditions for the development of their scientific research abilities. Scientists have developed conditions for the free self-realization of students, and future specialists, which is optimal in the aspect of scientific research, and communication between junior students and teachers and which is aimed at increasing motivation to solve research tasks chosen by students of higher education.

Scientists I. Maldonado Ramírez et al. (2023) in the article attempt to determine the current state of the applied level of information technologies. The researchers analyzed information and communication and cloud computing and their contribution to quality assurance and management in public universities.

Researchers B. Torres Chumbes, E. Quispe Alcca & B. Hermitaño Atencio (2022) reviewed the use of effective information technology teaching methods in student learning. Their study was developed within the framework of a quantitative approach with a pre-experimental design and proposes to determine the relationship that exists between cloud services and attitudes towards information technology among students.

Despite the significant interest of scientists in the researched problem, insufficient attention is paid to the organizational and substantive aspects of the research activity of junior higher education students in the process of their professional training, as well as to the formation of research competence of students through the use of cloud-oriented technologies that are available today, which aimed at improving the creative abilities of future specialists.

*Purpose of the research:* for qualitative organization of research work in institutions of higher education, to show the ways of formation of research competence in students of bachelor's and master's levels.

### **Methodology**

To achieve the goal, research methods were applied at the research stages: theoretical – abstraction, analysis of the subject of study; definitive analysis of the thesaurus of the pedagogical problem; empirical – organizations observing the object of research to ensure the profiling of the educational process; comparative studies; pedagogical experiment; statistical – processing of research results.

To check the effectiveness of the organization of students' experimental work, we conducted a pedagogical experiment that lasted during the initial year of 2022-2023 in stages: ascertainment and formative.

The purpose of the confirmatory experiment was to confirm the expediency and relevance of research on the chosen topic.

The formative experiment consisted of two stages: initial and summary-analytical.

202 students of higher education were involved in the experiment, they were senior year students of bachelor's and master's levels.

Participants of the experimental group (EG) (100 people) were involved in scientific research and active work, they actively participated in scientific competition events: presentations of scientific projects, round tables, seminars, conferences, exhibitions, lectures, debates, intellectual games, Olympiads, meetings with famous scientists, competitions, as well as in other events aimed at stimulating scientific research.

Participants of the control group (CG) (102 people) studied according to the program of the unchanged curriculum. Their scientific and research work was mainly carried out in the process of approbation of research results in scientific publications and during scientific and pedagogical practice.

Our hypothesis consisted of the statement that the result of a high-quality organization of scientific research work in higher education institutions is a high level of research competence development in students of senior years at the bachelor's and master's levels.

To diagnose the level of development of students' research competence, we selected point indicators: During the study, we used our own observations of students' preparation for future professional activities,

the method of independent characteristics of teachers, conversations, surveys, analysis of practice, introspection, observation of students' actions during round tables, training, conferences, resolution of discussions and resolution of pedagogical situations.

To determine the reliability of the distribution of students into experimental and control groups, according to the results of the experiment, the  $\lambda$ -criterion of Kolmogorov-Smirnov was used, which made it possible to find the point at which there is the largest sum of accumulated differences between the two distributions. The value of the criterion  $\lambda$  is not significant.

The empirical distribution of the levels of formation of research competence in the control and experimental groups practically does not differ. This allowed us to conclude the correctness of the division of groups into control and experimental groups.

According to the results of the initial stage of the experiment, it was proved that the majority of respondents are not motivated for scientific work, are not sufficiently convinced of the need to develop research competence, do not consider it to be the most important component of the future profession, and not everyone gets satisfaction from scientific research work.

It is shown that specially organized, purposeful work on the formation of research competence using cloud-oriented technologies, which is current today, is necessary.

At the final and analytical stage of the formative experiment, cloud-oriented technologies and the methods and forms of students' research work developed by us were implemented into the practice of university education; control sections were conducted to identify the level of formation of students' research competence using cloud-oriented technologies. The same methods were used at the initial stage of the experiment. Indicators of the levels of students' research competence in the initial and final analytical stages of the experiment have changed. The results of the research in the experimental group prove that the experimental work contributed to the formation of students' research competence using cloud-oriented technologies that are current today. Indicators did not significantly increase in the control group.

After conducting the formative experiment, the obtained results are statistically significant.

Research relies heavily on the accuracy and reliability of the data. In the framework of research work, the quality of data collection and analysis not only adds weight to the research, but also contributes to the formation of sound conclusions, which is the key to academic success.

The following digital data collection tools were useful in the study:

- Google Forms - a simple tool for creating surveys that allows you to collect data from respondents, create different types of questions and collect answers in spreadsheets.
- SurveyMonkey - a modern survey tool that offers a wide range of customization options and analytical tools for analyzing the collected data.
- JSTOR, Google Scholar, and other academic search engines to provide access to scholarly articles, books, and other academic resources that may be useful for literature review and theoretical data collection.
- Zotero or Mendeley - bibliography management programs that help organize research materials, store references, and format bibliographies and citations according to different citation styles.
- Microsoft Excel or Google Sheets - spreadsheets are useful for organizing and analyzing collected data when working with quantitative data.
- SPSS, R or Python for more advanced data analysis, for statistical analysis and processing of volumes of data.

## Results and Discussion

### 1. Content and main directions of scientific research activity.

We present scientific and research activity as the practice of knowledge obtained through scientifically based, new components aimed at systematically changing social reality, which is implemented through the

application of appropriate methods and forms of scientific knowledge in a logical sequence (Povidaichyk et al., 2020).

The readiness of bachelor's and master's students for research work covers the following areas:

- Research traits of students (observation, sense of the new, inquisitiveness, initiative, willingness to take risks, objectivity, attentiveness, activity, cognitive independence, systematicity, consistency, purposefulness, research tact);
- An active positive attitude towards the research work of undergraduate and master's students (level of development of motivation, inclination to scientific research, understanding of the need for research work, creative and searching position, value orientations, highly developed abilities, and cognitive interests, research style of thinking);
- Knowledge system (knowledge of the subject, knowledge of pedagogical technologies, mastery of ideas, scientific concepts, mastery of methods, logic, theoretical and practical apparatus of scientific and pedagogical research);
- System of skills (intellectual, research, constructive, organizational, educational-intellectual, projective, analytical, cognitive, communicative, general education skills);
- Moral and volitional personality traits (interest in business, attentiveness, purposefulness, humanity, decisiveness, organization, responsibility, sociability, reliability, ambition, benevolence, persistence in achieving a goal, independence);
- Intellectual development of the student (formation of ideas, views, beliefs, scientific outlook, general erudition, development of abilities, skills, abilities, abstract-logical memory, creative imagination);
- Professional traits of a student of higher education (pedagogical tact, professional psychological position, creative pedagogical thinking, the ability for self-improvement, professional interest, reflection, interest in business, punctuality, thoroughness, high level of methodological, pedagogical, and general culture) (Bilostotska, 2009).

In the process of scientific and research activities of higher education students, pedagogical assistance includes:

- Encouraging students to engage in research activities;
- Permanent stimulation of students to research activities, aimed at the constant growth of motivation to solve selected research tasks by students of higher education. A prerequisite for the process of scientific research activity of students is the establishment of positive relations between the student himself, the group of students, and the teacher. It is necessary during scientific research activities to ensure the freedom of choice of the types of activities offered to the student;
- Assistance to students of higher education in choosing, setting, and solving research tasks adapted to the profession, which is implemented through providing conditions for free self-realization, providing the opportunity for self-determination, optimal communication in the aspect of scientific research between teachers and students;
- The inclusion of the theory of scientific research and the basics of methodology in the content of teaching general disciplines and the inclusion in the educational process of information about current scientific problems in the future profession (Puhach et al., 2021).

In the process of scientific research work, an important aspect for students, as full-fledged subjects of scientific research activity, is parity in the "teacher-student" relationship, which is realized through the involvement of future specialists in scientific research. Educational influence gains the greatest strength during a demanding and careful attitude to the results of students' work. In the process of implementing the studied pedagogical conditions, the most appropriate is – a democratic style, which allows the student to consider himself as an equal partner in a joint search and communication.

Starting from the first year of study, the scientific and research activity of students involves – ensuring their free self-realization (Rojas Bahamón et al., 2019).

When realizing oneself by one's capabilities, as students are ready for scientific research activity in solving a research task: a need may arise, a desire to do things in one's own way may arise, dissatisfaction with the function of the executor may arise. Then the teacher should "support the student's desire for "freedom from"

(the situation in which the student is) and "freedom for" (creating favorable conditions for self-realization)" (Povidaichyk et al., 2020).

## **2. Main directions, types of research work, and conceptual tasks of scientific activity in institutions of higher education.**

The scientific and research activity of students at the institution of higher education is carried out in the following main areas:

- Scientific research activity, which is mandatory for all students and is a component of the educational process (preparation for classes, writing essays, preparation and defense of term papers, diploma theses, the performance of tasks commissioned by enterprises during the period of production practice of a research nature, etc.);
- Research activities of higher education graduates outside the educational process, within the creative cooperation of departments – performing scientific works, participating in scientific circles, writing publications, theses of scientific reports, etc.

The teacher forges several tasks during the scientific research activity of students at a higher education institution, namely:

- 1) Introduces the scientific research methods of the executors of scientific research work, and teaches them to apply them in practice, including innovative methods and cloud-oriented technologies available today, which are aimed at increasing the creative abilities of future specialists;
- 2) Teaches to identify an actual scientific problem, independently organize and plan scientific research work, determine specific goals, find ways to solve the set goal, apply methods of practical verification, formulate a research hypothesis, conduct experimental research, prepare research results by established requirements, prove for science and practices, the usefulness and correctness of the obtained results, to defend one's point of view in scientific discussions through public defense, participation in seminars, conferences, etc.;
- 3) Forms the qualities of a professional researcher in students (Kravchenko et al., 2022).

Therefore, the teacher needs not only practical skills and knowledge (based on the results of his own research) on the methodology of conducting scientific research, to organize a high-quality innovative educational process but also the implementation with the involvement of students of the results of research, relevant research skills, a formed readiness to perform scientific research work, skills in the field of using innovative learning technologies, cloud-oriented technologies, which are available today and are aimed at increasing the creative abilities of future specialists, etc. (Bulvinska et al., 2016).

The main types of research work of students in institutions of higher education are:

- Training of highly qualified specialists who possess the necessary practical and in-depth theoretical knowledge;
- Effective use of students' creative potential to solve current problems of technology, science, and technology;
- Development of new methods, technologies, teaching methods, and tools;
- Professional development during life;
- Introduction of new scientific results into the educational process;
- Conducting exploratory research at the expense of grants or the expense of institutions, organizations, and enterprises interested in scientific development;
- Creation of conditions for carrying out scientific work (Kuchai et al., 2017); (Bulvinska et al., 2016).

## **3. Interrelated elements, components, principles, priority areas of organization, development, and improvement of the effectiveness of scientific research activities of students.**

The scientific and research activity of students in a higher educational institution is a creative process that includes interrelated elements (Tsekhmistrova, 2004):

- Teaching students methods and organization of scientific creativity, elements of scientific and research activity;

- Initiative, under the guidance of teachers, scientific research carried out by students.

Scientists have highlighted the components of scientific research activity of students in a higher educational institution:

- *Motivational* – motives, as a reason for choosing the direction of activity; needs as sources of personality activity; aspirations, emotions, instructions, desires, as regulators of activity dynamics;
- *Cognitive* – the availability of theoretical knowledge from professional disciplines, knowledge about the organization of students' research activities, knowledge about the peculiarities of students' research activities (Sultanova, 2018);
- *Value-motivational* – moral-ethical, spiritual, material, cognitive interests and needs; a system of value orientations of a person and a person's beliefs as a guarantee of self-development and own self-realization, regarding the purpose and essence of future professional activity; interest as an important source of professional needs in scientific and research activity and the growth of creative potential, the formation of motives for research activity, the formation of persistent interest in learning the pedagogical process, the desire through scientific and research activity for self-improvement, in the improvement of the pedagogical process, understanding the valuable role of research;
- *Meaningful* – systematic mastering of knowledge on the methodology of scientific and pedagogical research and methodology, identifying the essence of the main contradictions and ways of solving them in modern education; separation and selection for the study of the most effective stages of research, components, types, forms, principles, methods of scientific research; development of innovative technologies, models, and methods of implementation in practice; formulation of conclusions and knowledge of the basics of statistical processing of the obtained results; disclosure of the content of research activities in educational institutions;
- *Operational* – the ability to conduct scientific and pedagogical research, that is, to process and accumulate scientific information, search, critically analyze the real state of the studied phenomenon and analyze scientific literature; to possess the methodological apparatus of research, to forecast the development of the researched problem, to introduce pedagogical research into the work system of educational institutions, to apply the optimal system of methods of research work, to correctly design the results of scientific work; conduct and defend experimental work; objectively determine the effectiveness of the conducted research; the ability to cooperate with a team; apply new effective learning models and technologies; generalize, study, implement innovative pedagogical experience; to organize the work of student scientific groups; plan and conduct seminars, conferences, contests, Olympiads, etc. – mass events;
- *Procedural and operational* – the presence of such characteristics as organization, initiative, self-control, self-discipline, independence, persistence, activity, consistency, objectivity, productivity, creativity, creativity;
- *Reflexive-resultative* – systematic mastery of self-assessment skills, self-observation, self-regulation, self-analysis, self-control, and self-assessment of the results and process of one's own activity (Bilostotska, 2009).
- *Design component* – the ability to determine the object and subject of research, to identify and formulate problems, to define basic concepts, the ability to plan research activities, to formulate the purpose and hypothesis of research;
- *Informational component* – mastery, by the research problem, of methods of data collection, processing of sources of various information;
- *Analytical component* – the choice of special research methods and the use of universal ones, creative abilities, developed logical thinking;
- *Practical component* – presentation, formulation, and implementation of research results into practice (Holovan & Yatsenko, 2012).

The formation of a future specialist's readiness for scientific and research activities is a pedagogically complex process, and it is appropriate in higher educational institutions to observe the principles in the field of pedagogical sciences in the organization of students' scientific and research activities: scientificity; systematicity; individualization; integration of professional training and research process; self-organization; scientific and methodical consulting; monitoring (Budnyk et al., 2022); (Doronina, 2017).

Holistic, comprehensively implemented scientific and research activity of higher education students ensures the solution of the following tasks:

- Formation of the scientific worldview of higher education graduates and mastering of scientific research methods and the methodology of education;
- Development of student's individual abilities and creative thinking in solving practical tasks;
- Assisting those seeking higher education in achieving high professionalism and accelerated mastery of a specialty;
- Development of the ability and initiative to apply theoretical knowledge in practical work, involvement of the most capable students in research;
- Inculcating the skills of independent scientific and research activity by a higher education seeker;
- Development of existing and creation of new creative collectives, scientific schools, training of researchers and scientists in those who acquire higher education;
- Expanding the scientific erudition of the future specialist and the theoretical outlook of the individual;
- The need to improve knowledge and constantly update it (Sheiko & Kushnarenko, 2004).

#### **4. Creative methods and cloud-oriented technologies aimed at increasing the creative abilities of future specialists.**

Let's consider creative methods of scientific and research activity, which contribute to the formation of professional creativity, ensuring that students obtain subjectively new knowledge of an educational or scientific nature.

The creative methods we use in our work include the following: "Brainstorming"; figurative picture; agglutination and hyperbolization. Resources that contribute to the implementation of such methods in the educational process, contribute to the practical application of rules and hypotheses, and contribute to the search for ways to solve scientific tasks – are network tools that allow organizing collective work on a scientific project (Correa Cruz et al., 2017).

Such resources include, according to the scientific project, the creation of joint documents in the cloud on Dropbox, Google Drive, Zoho, and OneDrive, generating ways to solve the scientific problem, planning joint work using network resources that contribute to the implementation of tasks in the organization of collective work, project management: RealtimeBoard, Trello, Kanbanchi, PodiO (Knysh et al., 2023).

The introduction of such tools into the research activity of students intensifies the use of creative methods of research activity: "Brainstorming"; figurative pictures; agglutination and hyperbolization. Joint discussion of scientific problems in joint work on projects allows to motivate and involve students in scientific activity.

Blogs and wikis are Web 2.0 applications, and since they are hosted in the cloud, we understand them as cloud-oriented technologies based on the SaaS service model (Lytvynova, 2014), which are characterized by the key properties of cloud infrastructure (elasticity, pay-as-you-go, etc.).

It is worth noting that students can independently edit and create content, using wiki resources and blogs, that is, present the results of their scientific work. Students and teachers, that is, network users, can evaluate, analyze, edit, and comment, that is, the very process of forming scientific materials becomes controlled.

Blogs, which we implement in the educational process of higher education for high-quality, innovative professional training of future specialists, perform the following functions: communicative; grouping and maintenance of social ties; self-presentation; self-development or reflection; psychotherapeutic, etc.

We used different types of blogs to organize various forms of research activity:

- The blog of a scientific leader or teacher – to provide coverage of the organizational and operational stages of scientific and research activities;
- Blog of a group of students – for project work, work on one scientific problem;
- Student's blog – to create and support the student's independence, which makes it possible to display the results of his research activities. The introduction of this type of blog into scientific research activity promotes the stimulation of students' involvement in conducting research, conducting research planning, increases the responsibility of each student for the materials posted on the blog, provides the

opportunity for self-organization of each student, reflection and reviews, and participation in various forms of scientific research activity in higher education (Proshkin et al., 2018).

## 5. Experiment.

To check the effectiveness of the organization of students' experimental work, we conducted a pedagogical experiment that lasted during the initial year of 2022-2023 in stages: ascertainment and formative.

When determining the sample of subjects, the general specificity of the subject of the study was taken into account. The total sample size is 202 subjects. When forming the sample, the criteria of meaningfulness, representativeness, and equivalence were taken into account. The sample was formed by random selection using the technical procedure for calculating the selection step.

The implementation of the pedagogical experiment was carried out in three stages: preparatory, main and final.

At the preparatory stage, the purpose and tasks of the research were determined, the experimental plan was developed, methods of measurement and processing of results were selected, control and experimental groups were selected, and their homogeneity was checked.

At the main stage, an experiment was conducted.

At the final stage, the results of the experiment were analyzed, their reliability was confirmed, and conclusions were drawn about the pedagogical effect of the experiment.

The reliability and validity of the obtained results, the objectivity of their assessment was ensured by the methodological soundness of the initial positions and the qualitative mechanism for evaluating the quality under study, the use of a complex of complementary research methods, and the involvement of a group of respondents from a higher educational institution in the analysis of its results.

To assess the homogeneity of experimental and control data, statistical processing was performed using MS Excel and SPSS (Statistical Package for Social Science).

The purpose of the confirmatory experiment was to confirm the expediency and relevance of research on the chosen topic.

The formative experiment consisted of two stages: initial and summary-analytical.

During the ascertainment experiment, educational-methodical, pedagogical, philosophical, psychological, and literature were analyzed and summarized to define basic concepts, clarify the essence of concepts, and theoretical-methodological foundations of research, and identify and classify methods and forms of experimental work.

In the process of the formative experiment, knowledge sections of the questionnaire were made, conversations were held with students and with teachers, and a complex of diagnostic procedures was developed to identify the level of skills, abilities, and knowledge of students on improving the organization of research work using cloud-oriented technologies.

At the initial stage of the experiment, experimental and control groups of students were selected; the method of experimenting was developed; a working hypothesis was formulated; entrance control of the level of development of research competence of students was carried out, which assumes the presence of theoretical knowledge, skills in professional disciplines reflects socio-pedagogical, philosophical-methodological, organizational-methodical, psychological knowledge of the basics of research activities of higher education students, allows to carry out research work, controls stages of scientific knowledge, forms an idea of the logic, structure of scientific research, provides experience of scientific work, etc.

202 students of higher education were involved in the experiment, they were senior year students of bachelor's and master's levels.

Participants of the experimental group (EG) (100 people) were involved in scientific research and active work, they actively participated in scientific competition events: presentations of scientific projects, round tables, seminars, conferences, exhibitions, lectures, debates, intellectual games, Olympiads, meetings with famous scientists, competitions, as well as in other events aimed at stimulating scientific research.

Participants of the control group (CG) (102 people) studied according to the program of the unchanged curriculum. Their scientific and research work was mainly carried out in the process of approbation of research results in scientific publications and during scientific and pedagogical practice.

Our hypothesis consisted of the statement that the result of a high-quality organization of research work in higher education institutions is a high level of research competence formation in students of senior years of bachelor's and master's levels.

To diagnose the level of development of students' research competence, we selected point indicators:

- 1 point – extremely poorly expressed competence;
- 2 points – weakly expressed competence;
- 3 points – moderately expressed competence;
- 4 points – sufficiently expressed competence;
- 5 points – clearly expressed competence.

This allowed us to distinguish three levels of formation of research competence.

- 1–2.5 points – low level of formation of the specified competence: formation of research competence;
- 2.6–4 points – the average level of development of research competence;
- 4.1–5 points – high level of development of research competence.

During the research, personal observations of students' preparation for future professional activities, the method of independent characteristics of teachers, conversations, surveys, analysis of practice, self-analysis, observation of students' actions during round tables, training, conferences, resolution of discussions and resolution of pedagogical problems were used. Situations.

A high level of formation of research competence was achieved by:

- 11.3% of EG students;
- 9.1% of CG. These are mostly students who are actively self-developing in the direction of using information technologies, are engaged in scientific work, and have a stable positive attitude toward future professional activities.

Most students are at an average level of research competence development:

- 28.5% of respondents in EG;
- 24.2% of respondents in CG.

At a low level of formation of research competence:

- 60.2% of respondents in EG;
- 64.5% of respondents in CG.

To determine the reliability of the distribution of students into experimental and control groups, according to the results of the experiment, the  $\lambda$ -criterion of Kolmogorov-Smirnov was used, which made it possible to find the point at which there is the largest sum of accumulated differences between the two distributions. The value of the criterion  $\lambda$  is not significant. The empirical distribution of the levels of formation of research competence in the control and experimental groups practically does not differ. This allowed us to conclude the correctness of the division of groups into control and experimental groups.

So, according to the results of the initial stage of the experiment, it was proven that most of the respondents are not motivated for scientific work, are not sufficiently convinced of the need to develop research

competence, do not consider it the most important component of the future profession, and not everyone gets satisfaction from scientific research work.

So, we see that specially organized, purposeful work on the formation of research competence using cloud-oriented technologies, which is current today, is necessary.

At the final and analytical stage of the formative experiment, cloud-oriented technologies and the methods and forms of students' research work developed by us were implemented into the practice of university education; control sections were conducted to identify the level of formation of students' research competence using cloud-oriented technologies. The same methods were used at the initial stage of the experiment. Indicators of the levels of students' research competence in the initial and final analytical stages of the experiment have changed. The results of the research in the experimental group prove that the experimental work contributed to the formation of the research competence of students using cloud-oriented technologies, which are current today. In the control group, the indicators did not increase so significantly:

- 29% of future specialists were identified at a high level in EG, 12.8% in CG;
- At the average level in EG – 45.9% of respondents, in CG – 25.9%;
- At a low level in EG – 25.1% of students, in CG – 61.3%.

After the formative experiment, the obtained results are statistically significant.

## Conclusions

The content and main directions of scientific research activity are revealed. The main directions, types of research work, and conceptual tasks of scientific activity in institutions of higher education are highlighted.

The interrelated elements, components, principles, and priority directions of the organization of development and improvement of the effectiveness of scientific research activities of students have been clarified. The need to introduce creative methods and cloud-oriented technologies into the educational process of the higher school, which are aimed at increasing the creative abilities of future specialists, is emphasized.

To check the effectiveness of the organization of students' experimental work, we conducted a pedagogical experiment that lasted during the initial year of 2022-2013 in stages: ascertainment and formative. The purpose of the confirmatory experiment was to confirm the expediency and relevance of research on the chosen topic. The formative experiment consisted of two stages: initial and summary-analytical.

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activities, the method of independent characteristics of teachers, conversations, surveys, analysis of practice, introspection, observation of students' actions during round tables, training, conferences, resolution of discussions and resolution of pedagogical situations.

To determine the reliability of the distribution of students into experimental and control groups, according to the results of the experiment, the  $\lambda$ -criterion of Kolmogorov-Smirnov was used, which made it possible to find the point at which there is the largest sum of accumulated differences between the two distributions. The value of the criterion  $\lambda$  is not significant.

The empirical distribution of the levels of formation of research competence in the control and experimental groups practically does not differ. This allowed us to conclude the correctness of the division of groups into control and experimental groups.

According to the results of the initial stage of the experiment, it was proved that the majority of respondents are not motivated for scientific work, are not sufficiently convinced of the need to develop research competence, do not consider it to be the most important component of the future profession, and not everyone gets satisfaction from scientific research work. We see that there is a need for specially organized, purposeful work on the formation of research competence using cloud-oriented technologies, which are available today.

At the final and analytical stage of the formative experiment, cloud-oriented technologies and the methods and forms of students' research work developed by us were implemented into the practice of university education; control sections were conducted to identify the level of formation of students' research competence using cloud-oriented technologies. The same methods were used at the initial stage of the experiment. Indicators of the levels of students' research competence in the initial and final analytical stages of the experiment have changed.

The results of the research in the experimental group prove that the experimental work contributed to the formation of the research competence of students using cloud-oriented technologies, which are current today. Indicators did not significantly increase in the control group.

After conducting a formative experiment, we claim that the obtained results are statistically significant.

Our unique research contribution is that for the qualitative organization of scientific and research work in institutions of higher education, we show the ways of forming research competence in students of bachelor's and master's levels.

Proposals for future research are that due to the application of cloud-oriented technologies, higher activity of the participants of the educational process will be achieved, both the effectiveness of the educational activities of the students of education and the level of their research competence will increase. Therefore, the strengthening of requirements for the quality of the training of specialists in institutions of higher education determine the expediency of further theoretical and practical development of this problem, in particular, the study of the possibilities of diversification of methods, forms and technologies that would contribute to the formation of research competence of university students with the help of cloud-oriented technologies, which will become important a step on the way to the professionalism of modern teachers.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.6>

How to Cite:

Kushch, E., Zhykharieva, O., Sunko, N., Melekh, H., & Stavtseva, V. (2024). Olfactory metaphor: forming, semantics, functioning. *Amazonia Investiga*, 13(77), 81-89. <https://doi.org/10.34069/AI/2024.77.05.6>

## Olfactory metaphor: forming, semantics, functioning

### Ольфакторна метафора: формування, семантика, функціонування

Received: March 10, 2024

Accepted: April 22, 2024

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#### Abstract

The purpose of the article is to analyze the formation, semantics, and functioning of olfactory metaphors in modern English fiction texts. This article examines olfactory metaphors, a type of synesthetic metaphor, as complex linguo-cognitive and perceptual phenomena rooted in human sensory experience. Methods of conceptual, semantic, component and contextual analysis enable to reveal the models of olfactory metaphors used in English-language fiction texts: «SMELL-TASTE», «SMELL-TOUCH», «SMELL-SIGHT» «SMELL-HEARING». Such models actualize polymodal and intermodal images, as well as the perceptual sensations of a person perceiving a smell. The semantic characteristics of olfactory metaphors in English-language fiction texts are revealed with the help of contextual and semantic analysis.

#### Анотація

Метою статті є аналіз формування, семантики та функціонування ольфакторних метафор у текстах сучасної англійськомовної художньої літератури. Ольфакторна метафора розглядається у статті як вид синестезійної метафори, що є складним лінгвокогнітивним та перцептивним явищем, сформованим на основі людського сенсорного досвіду. Методи концептуального, семантичного, компонентного та контекстуального аналізу дозволяють виявити моделі формування ольфакторних метафор у текстах англійськомовної художньої літератури: «ЗАПАХ-ДОТИК», «ЗАПАХ-СМАК», «ЗАПАХ-ЗІР», «ЗАПАХ-СЛУХ». Подібні моделі актуалізують полімодальні та інтермодальні образи, а також перцептивні відчуття, які виникають у людини при сприйнятті запаху. Семантичні характеристики ольфакторних метафор

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**Keywords:** linguo-cognitive and perceptual phenomenon, olfactory metaphor, semantics, text, English language.

англомовних художніх текстів виявляються за допомогою методів контекстуального та семантичного аналізу.

**Ключові слова:** лінгвокогнітивне та перцептивне явище, ольфакторна метафора, семантика, текст, англійська мова.

## Introduction

Metaphor plays a significant role in human cognition and understanding of the reality. It is also one of the most productive means of enriching the language, a manifestation of a linguistic economy that uses signs of one conceptual sphere to denote another one similar to it. Philosophers (Avtonomova, 1991; Mattice, 2017; Ortony, 1993), linguists (Ilchenko, et al., 2021; Kravchenko & Zhykharieva, 2023; Kramar & Ilchenko, 2021; Kushch, 2013; Kriukova, 2000; Lakoff & Johnson, 2008; Ricoeur, 2004; Ricoeur & Czerny, 1981; Zhykharieva & Stavtseva, 2023; Zhykharieva & Stavtseva, 2024), and literary critics (Prokopieva, Dmitrieva & Korkina, 2019; Rindisbacher, 1992; Turanina, et al., 2019; Williams, 1999) have been using the concept of metaphor for centuries. A significant amount of scientific literature devoted to the problem of metaphor indicates a great interest of scholars to it.

An increased interest in synesthetic metaphorical nominations is observed in modern linguistics nowadays (Ivakina, 2001; Fomin, 2018; Gibbs, 1994). Such metaphors are motivated by human bodily sensations and the interaction of human sensory systems. Olfactory metaphors denoting the peculiarities of human perception of different smells are the least studied among other groups of synesthetic metaphors.

The study of English olfactory metaphors – carried out in the article – contributes to the understanding of creating mechanisms of polymodal and intermodal images of smell. Besides, it reveals the models of intersensory transfers based on which such images are formed. Meanings of olfactory metaphors are scrutinized in the article, characteristics of their referents in the English-language fiction texts are also revealed. It provides an opportunity to reveal the subjectivity and individuality of perceiving a particular smell and its varieties by humans as well as to identify the means and ways of linguistic fixation of their olfactory and polysensory impressions, along with sensations of extralinguistic reality.

## Theoretical Framework

The study of smells and the subtleties of their perception goes back to ancient Greece, where sensory and rational cognition were clearly distinguished. Plato (428 BC – 348 BC) attributed smells to the realm of the sensual perception and divided them into two categories: pleasant and unpleasant, due to the feelings they evoked. Smells that gave an esthetic pleasure and did not provoke physiological reactions were considered to be positive. Smells, which were considered as a source of sensual passion, arousing a sense of pleasure, a rampant hunger, leading to the inhibition of human consciousness, were assessed negatively (Alican, 2012; Plato, 1997).

Since Plato, philosophers have paid little or no attention to studying and interpreting smells. Immanuel Kant (1724 – 1804) turned to this topic only thousands of years later. He considered smells from the point of view of pleasure that positively affect consciousness (Kant, 2005). The lack of scientific interest in the olfactory sphere overall (*from the Latin olfactorius – fragrant, odorous, belongs to the area of smell perception*) is explained by the increased interest in other sensory spheres of human perception, vision and hearing especially. Unlike olfactory, they were considered dominant in comprehending reality (Baltussen, 2014).

Scientists took the plunge into the research of smells only at the beginning of the twentieth century. It was influenced by the development of several human sciences: psychology, medicine, neurophysiology, psychophysiology, and later cognitology and its varieties. Awareness of the olfactory channel's role in human perception of information has led to the pressing need for scrutinizing the biological, psychophysiological, cognitive, and other factors of smell; its socio-cultural value in the life of humanity as well as in life of every individual, and peculiarities of its designation by linguistic means.

Fiction is one of the most striking «treasure troves of smell». Smells and aromas help to create the flavor of a particular era, time, place, or even period of a person's life. The theme of smells in fiction texts became particularly popular in 1985 after the publication of Patrick Süskind's *Perfume: The Story of a Murderer* (Süskind, 2010). The novel and its subsequent film adaptation by Tom Tykwer in 2006 brought about a real «olfactory revolution». Roles and importance of different kinds of smell in world literature over the past one hundred and fifty years was studied thoroughly in the book *The Smell of Books: A Cultural-Historical Study of Olfactory Perception in Literature* (Rindisbacher, 1992).

Emphasizing that the human sense of smell can distinguish hundreds of thousands of different smells, Dan Sperber pointed out the following: «In none of the world's languages does there seem to be a classification of smells comparable, for example, to colour classification.... There is no semantic field of smells» (Sperber, 1975, p. 115-116). The only exception is Livatsi, the language of hunting people of the West African part of Gabon. It has eleven smell namings used by its representatives during hunting (Kostyaev, 2007, p. 38). Therefore, smells can be defined as cognitively constructed units that are used to reflect their objective reality.

A hypothesis for the lack of variable olfactory vocabulary in different languages may be the fact that over the course of human evolution, the sense of smell gradually lost its importance in favor of sight and hearing, which have been entitled to a more significant role in the perception of the surrounding reality and nature preservation (Velichkovskij et al., 1973, p. 48). Another explanation of such absence is the peculiarities of the brain's neurophysiological structures: processing of the olfactory stimuli is carried out in the right brain hemisphere, which does not perform verbal function (Vecker, 1998, p. 162).

Studying the modeling of the world of smells in P. Süskind's *Perfume: The Story of a Murderer* (Süskind, 2010), H. J. Rindisbacher emphasized: «In human communication, the world of smells has a bipolar structure and the space between these two poles is almost empty...» (Rindisbacher, 1992, p. 60). The most common solution is to describe a smell through its correlation with an abstract notion: pleasant smells are evaluated positively, unpleasant ones – negatively, and as a result, an explanation of an array of smells is limited in languages to a few designations. Therefore, when describing an odor, a person has to compare it with something «to find an accurate metaphor to indicate the peculiarities of smell perception» (Fomin, 2018, p. 21).

The olfactory metaphor, a metaphorical nomination with the component «smell», based on the phenomenon of synesthesia, is a successful means for overcoming the complex system of natural barriers to the designation of olfactory sensations. Studying the olfactory metaphor becomes possible due to the awareness of its essence as a linguo-cognitive and perceptual phenomenon, the evolution of linguistics, which leads to its interdisciplinary nature, and the emergence of various paradigms for studying language and its units.

## Methodology

Synesthetic and olfactory metaphors are related to perception, cognition, and linguistic actualization, which determines its complex multidimensional nature and necessity of interdisciplinary study involving data from psychology and cognitive linguistics. *The synesthesia and synesthetic metaphor theory* is the methodological basis for studying olfactory metaphors. Synesthesia (*from the Greek syn – together and aisthesis – sensation*) means «a joining of the senses» (Cytowic 1989, p. 1). However, the terms «intersensory connection» (Gazarova, 2002, p. 12), «intersensory sensation» (Velichkovskij, et al., 1973, p. 50), and «intermodal perception» (Howes, 1991, p. 34) are also used to designate the notion of synesthesia.

In psychology synesthesia is viewed as a phenomenon of perception in which, along with sensations specific to one particular organ, sensations of other stimulated organs appear simultaneously (Gazarova, 2002, p. 13). Synesthesia is also considered to be a fusion of qualities of different spheres of sensitivity, in which the qualities of one modality are transferred to another (Cytowic, 2018, p. 36). The synesthesia experience refers to multisensory impressions and sensations that cross the boundaries of one modality and are based on particular mode of perception: SIGHT, HEARING, TASTE, SMELL, TOUCH, TEMPERATURE (Howes, 1991, p. 32). Modality is used as a psychological term meaning «belonging to a certain sensory system» (Rubinstein, 1998, p. 27).

*The theory of synesthetic metaphor* has been developed also due to the development of *the theory of conceptual metaphor*. Within conceptual theory – founded by the American researchers J. Lakoff and M. Johnson – metaphor is viewed as a means of the world conceptualizing, complex linguistic and cognitive phenomenon, the basis of human mental operations manifested in linguistic metaphorical expressions available to perception (Lakoff & Johnson, 2008). The complex organization of synesthetic metaphors at the conceptual and linguistic levels distinguish them from many other conceptual metaphors.

Olfactory metaphor as a type of a synesthetic metaphor appears as a result of the cognitive-symbolic integration of human sensory experience. It plays a significant role in integrating the human verbal and sensory-imaginative systems. The sensuality is conceptualized not as a separate way of cognition but as something synergistic, holistic, and integrated. This view of metaphor is based on the conceptual statement put forward by cognitive scientists who emphasize the person's vigorous, consciously creative activity (Pankratova, 2009; Zinchenko, 2022; Zubkova, 2010). In this regard, metaphor is seen not only as a trope or figure of speech that reflects a similar experience (Gazarova, 2002, p. 38) but also as a bodily and cognitive construct being a part of the integrative processes of subjective experience with verbal embodiment (Fomin, 2018, p. 22; Grossenbacher & Lovelace, 2001; Seaberg, 2023).

Perceiving a smell, a person has a *polymodal image* of the object or situation of that smell verbalized through metaphorical denotation. The polymodal image is a complex mental formation that reflects the peculiarities of human perception of a particular phenomenon and object in the unity of all sensory impressions (taste, sight, hearing, touch, smell etc.) (Howes, 1991, p. 34). Along with polymodal, scholars also distinguish intermodal transfer based on characterizing an object that does not correspond to real perceptual sensations (Vasiliuk, 1993, p. 7; Gazarova, 2002, p. 71).

The data analyzed in the paper encompass 800 olfactory metaphors selected from 31 modern English-language fiction texts.

*The method of integrative analysis of linguistic and psychological data* is used to clarify the essence of olfactory metaphors as a type of synesthetic metaphorical nominations. The selection of olfactory metaphors is carried out by *analyzing their meaning and component structure*. It enables identifying the basic lexical units of the nomination of the olfactory sphere in English and lexemes of other perceptual spheres, which, along with the basic units, are involved in creating olfactory metaphors.

*The methods of conceptual, semantic, component, and contextual analysis* make it possible to identify the models of intersensory transfers on which the olfactory metaphors of the modern English-language fiction texts are based. *Semantic and contextual analysis methods* are used to determine the characteristics attached to smells and referents that are denoted by olfactory metaphors in fiction texts.

The study of olfactory metaphors is carried out in stages in the article:

- 1) The evolution of humanity's interest in smell and the problems to study the smells are viewed;
- 2) The specificity of olfactory metaphor as a type of a synesthetic nomination is clarified;
- 3) The models of intersensory transfers serving as the basis for the formation of olfactory metaphors in English, as well as polymodal and intermodal images of smell reflected in them are revealed;
- 4) The formation and functioning peculiarities of olfactory metaphors of different types of modalities in English literary texts are characterized;
- 5) Semantic, emotional, evaluative, and other characteristics of the analyzed olfactory metaphors are researched.

## Results and Discussion

The olfactory metaphors used in the English-language fiction texts are formed on the basis of intersensory transfer models «SMELL-TASTE», «SMELL-TOUCH», «SMELL-SIGHT», «SMELL-HEARING». A simultaneous combination of three types of modalities can also be the model for the formation of olfactory metaphorical nominations.

Olfactory metaphors based on the intersensory transfer model «SMELL-TASTE» are widely represented in the texts under analysis. These metaphors are based on the actual connection between the taste and odorative (olfactory) components of perception. Such a connection reveals the role and importance of the

sense of taste in human life. Taste plays a protective role and functions as a controller of the human digestive system (Pocock et al., 2017, p. 67).

The attributive lexeme of the taste modality *peppery* used in the synesthetic metaphors of the «SMELL-TASTE» model affects the connotation of the odorous sensation denoted by the lexemes *odor* and *scent* that become negative: *the peppery odor of his sweat* (Grisham, 2011, p. 402); *the peppery scent of water elder* (Lustbader, 2011, p. 307). The odorous metaphor with the component *smell* used with the adjective *musty* has a negative connotation: *the musty smell of the house* (Clancy, 2002, p. 174). Olfactory metaphors with the component *reek* have negative odorous connotations: *a soured reek* (Brin, 2013, p. 113); *the acrid reek of... disinfectants* (Rhodan, 2012, p. 86). An unpleasant smell creates correspondent atmosphere: *The atmosphere is sodden with the bitter reek of hallway filth* (Rhodan, 2012, p. 172).

There can also be a combination of three modalities («TASTE-SMELL-TOUCH») in English synesthetic metaphor. Odorous and taste metaphors may include nominations of the tactile modality represented by several submodalities, namely kinesthetic, gravitational, vibrational, tactile, temperature, and spatial-volumetric. As a result, the smell is endowed not only with taste but also with motor, gravitational, vibrational, tactile, temperature, and spatial-volumetric characteristics.

The following examples actualize kinesthetic sensations of smell: *sweet perfume floats in the air* (Gibson, 2003, p. 134); *The fruity scent filled the kitchen and spread through the entire house* (Eddins, 1986, p. 191). The smell can be localized in space: *A bitter stink of burnt feathers hung in the air* (Niven, 1985, p. 199); *the sour that smell rises from ... was hanging over the alley* (Pratchett, 2003, p. 403). The use of prepositions makes it possible to indicate the direction of the smell: *Honeyed scent across the spread table* (Clancy, 1998, p. 406); *The sweet odor floated over to me* (Crichton, 2009, p. 95); *A sweet, rotten-fruit odor burst forth* (Clancy, 1994, p. 606); *rancid reek striving against* (Mayer, 2012, p. 199).

Kinesthetic *waft* is the most frequent word used in the olfactory metaphors of this model: *a rancid odor wafted to him* (Rhodan, 2012, p. 167); *the sweet perfume of...smoke wafting off...jacket* (Turrow, 1996, p. 14); *The musty scent of newsprint filled her lungs* (Loudlum, 1984, p. 178). The temperature and spatial-volumetric submodalities are not represented in the considered model of odor and taste synesthetic associations.

Two nominations of the taste modality are often used alongside to characterize the perception of a certain smell: *the sweet, acid tang coming from* (Eddins, 1986, p. 195); *a sour-sweet odor pervades* (Clancy, 2010, p. 201). Taste nominations can be combined when used in a compound adjective (salt-and-sour): *The salt-and-sour smell of the rind filled the...room* (Norman, 2014, p. 118).

Taste sensations, in combination with visual ones, can be involved in the description of odorous sensations («TASTE-SMELL-SIGHT»). The perception of the smell can be accompanied by its color designation: *the sweet coppery scent* (Rhodan, 2012, p. 176). Olfactory and taste metaphors indicating subjective perception of a certain object and phenomenon are a separate group of metaphors: *the sour odor of settledness* (Pratchett, 2003, p. 327); *a sour odor lifted from her, the odor of dissolution of, impending death* (Rhodan, 2012, p. 198).

Adjectives denoting taste are much more frequently used in metaphorical nominations of smells of abstract concepts. The formation of such nominations reflects the real subjective connection existing between odorous feelings and abstract realities. The concepts of «life» and «death» often become the objects of designation by olfactory and taste synesthetic metaphors: *the sweet aroma of life and death* (Grisham, 2010, p. 18); *the spicy perfume of death* (Mayer, 2012, p. 136); *a sweet scent of life* (Bova, 2009, p. 207).

Olfactory and taste metaphors are used to denote abstract concepts such as «success» and «miracle»: *the sweet smell of success* (Eddins, 1986, p. 199); *the sweet scent of the miracle* (Clancy, 1994, p. 611). The abstract concept of «disease» denoted by the metaphorical nomination of this type receives a negative-evaluative emotional connotation: *sweet smell of disease* (Herbert, 1983, p. 546).

In the following examples, we can see an emotional reaction to the perception of smell: *smell so sweet it got you drunk* (Clancy, 2010, p. 212); *the tangy smell of the ocean, which made him sad* (Rice, 2006, p. 178). The evaluation of aroma and smell is determined by the individual perception of them. Appealing

to the individual sensory experience of the world's cognition by the subject of perception, olfactory and taste metaphorical nominations acquire additional synesthetic characteristics. Thus, for example, aroma affects the emotional state of a person: *the sweet aroma of the flower gardens filled my senses* (Martin, 2010, p. 299).

Olfactory metaphors based on the intersensory transfer model «SMELL-TOUCH» are also widely used in the English literary texts. Their abundance is not accidental, as they are the ones that define the most common intersensory relations that a person has when perceiving a smell. A person attempts to materialize it and endow it with specific qualities.

Spatial and volumetric characteristics of smell (*enveloping, wrapped around, to wrap around*) actualized in the olfactory metaphor of the «SMELL-TOUCH» model can be combined with its kinesthetic (*rose up, enveloping swirled out, wrapped ... around*), temperature (*warm*), tactile (*thick*) and gravitational (*heavy*) characteristics: *the warm aroma of broccoli rose up, ... enveloping the whole of her* (Vapnyar, 2009, p. 12); *A thick, heavy smell ... swirled out of the room and wrapped itself around them* (Clancy, 1998, p. 339). The combination of odoristic and spatial-volumetric sensations may also be accompanied by emotional comparisons: *the reek of booze and barf...surrounded her like a thick cloud* (Clancy, 1994, p. 209); *Their aroma surrounded me like summer perfume* (Adams, 1991, p. 104).

The synesthetic metaphors of the «SMELL-TOUCH» model have a significant impact on people, which is manifested at the physiological level, in particular: *the lingering scent of burned wood, scorched metal, and ash making her grimace* (Brennan, 2008, p. 10).

The olfactory metaphorical nominations of the «SMELL-SIGHT» model indicate visual sensations and visual images manifested when a person perceives smells. Sight provides humans with most of the information about the world around them. Vision impairment reduces the quality of life. Therefore, metaphorical nominations of this model are frequently used in English-language fiction.

The perception of smell can combine tactile (*sharp*), visual (*golden brown*), odorous (*fragrance*), and kinesthetic (*hung*) sensations: *a sharp, golden-brown fragrance hung in the air* (Hamilton, 2019, p. 709). Such metaphors define the connection existing between the olfactory and tactile categories (*sharp fragrance, fragrance hung*), as well as between the olfactory and visual ones (*golden-brown fragrance*). The following examples of metaphors indicate the double synesthetic transfers «SMELL-SIGHT» (*red whiff, dusky perfume*), «SMELL-TASTE» (*acid whiff, acid perfume*): *the red acid whiff* (Niven, 1985, p. 214); *dusky, ...acid perfume* (Clancy, 1994, p. 108).

Visual and olfactory synesthetic metaphors indicating the size of smells (*smallest whiff, little whiff*) can incorporate the characteristic of their spreading (*crawling across, comes from, rising*): *the smallest whiff of decay that comes from* (McCaffrey, 1992, p. 209); *the little whiff of steam rising from* (Clancy, 1987, p. 602). In rare cases, such synesthetic images are accompanied by temperature characteristics: *big warm whiff of tender pot roast* (Clancy, 2000, p. 217). There is also an individual-authored interpretation of the odorous sensation: *small whiffs possibility of* (Niven, 1985, p. 134).

Synesthetic metaphors of the analyzed model can indicate the detrimental impact of smell on the physiological level: *The clean scent of lemon oil polish irritated his sinuses* (Feist, 2005, p. 332); on the emotional level (*whiff of my scent...to turn him away*) (Barker, 2007, p. 209); on the physical level (*drugged with...flow of scent*) (Loudlum, 1984, p. 187).

The analysis of the synesthetic metaphors of the «SMELL-SIGHT» model reveals the multidimensionality and differentiation of the visual modality of smell perception. The substance «SMELL», as a part of olfactory synesthetic nominations, correlates with color, light, spatial and volumetric (size, length) characteristics. Involving components of color and light submodalities of the modality «SIGHT» when describing a smell not only forms a visual image of the concept «SMELL», but also adds certain axiological characteristics to its perception.

The English-language synesthetic metaphors based on the intersensory transfer «SMELL-HEARING» are not ubiquitous. There are just few examples of them: *ratling stink* (Clancy, 2002, p. 78); *His perfume was so noisy* (Adams, 1991, p. 32). Olfactory metaphors of different modality types are often accompanied by evaluative and emotional characteristics of smell perception, units characterizing its intensity.

## Conclusions

Olfactory metaphor is a complex linguo-cognitive and perceptual phenomenon, a type of synesthetic metaphor formed on the basis of the intersensory transfers models «SMELL-TASTE», «SMELL-TOUCH», «SMELL-SIGHT», «SMELL-HEARING». Such models actualize polymodal and intermodal images and perceptual sensations that a person has when perceiving a smell. English-language olfactory metaphors can also arise from models based on perceptual sensations of three types of modality.

Olfactory metaphors are widely used in English-language fiction not only to denote smell and the peculiarities of its perception by humans but also to characterize various phenomena and objects of extralinguistic reality. Olfactory metaphors of the «SMELL-TASTE» model are the most common in the analyzed literary texts. Such units reveal the connection between the olfactory and gustatory spheres of human perception, revealing the taste characteristics attributed to a smell when perceiving it. The olfactory metaphors of this model are used to nominate different abstract and specific notions, human feelings.

Olfactory metaphors of the model «SMELL-TOUCH» are also common in the English-language fiction texts. They actualize various person's tactile sensations of a person perceiving a smell: temperature, gravitational, motor, and spatial-volumetric. Metaphorical nominations of this model are also used to characterize the physiological states of a human perceiving various objects and phenomena of extralinguistic reality.

The substance «SMELL», as a part of olfactory synesthetic nominations used in English fiction texts, correlates with color, light, spatial-volumetric (size, length) characteristics. Such metaphors are formed on the basis of the model «SMELL-SIGHT». Involving components of color and light submodalities when describing a smell forms a visual image of the concept «SMELL» and adds certain axiological characteristics to its perception.

English-language synesthetic metaphors based on the intersensory transfer «SMELL-HEARING» are scarce in English fiction since the sense of hearing is rarely involved in the formation of synesthetic images of smell. Prospects for further research are seen in a comparative analysis of different groups of olfactory metaphors in various types of English fiction and non-fiction texts.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.7>

how to cite:

Samoilenko, O., Veits, A., Albul, S., Yankova, L., & Shchurat, T. (2024). Combating excise Smuggling: A comparative analysis of Ukraine and Poland. *amazonia investiga*, 13(77), 90-107. <https://doi.org/10.34069/AI/2024.77.05.7>

## Combating excise Smuggling: A comparative analysis of Ukraine and Poland

### Протидія протиправній діяльності у сфері обігу підакцизних товарів: досвід України та Польщі

Received: April 4, 2024

Accepted: May 30, 2024

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#### Abstract

The excised goods, such as alcoholic beverages and tobacco products, are the object of widespread smuggling and illegal circulation. This illegal activity leads to significant budget losses, affects the health of the population, and disrupts the level of competition in the market. In 2020 approximately 50% of all alcoholic beverages sold in Ukraine were illicit, resulting in significant tax revenue losses for the government. A 2021 report indicated that around 18.1% of the tobacco market in Ukraine was composed of smuggled or counterfeit products. This illicit market caused an estimated annual tax revenue loss of \$250 million. The experience of Ukraine and Poland in the field of combating excise smuggling can be essential for the development of effective strategies and policies to combat this phenomenon. The aim of the article is to study the ways of countering illegal activities in the sphere of circulation of excise

#### Анотація

Підакцизні товари, такі як алкогольні напої та тютюнові вироби, є об'єктом масової контрабанди та незаконного обігу. Ця незаконна діяльність призводить до значних втрат бюджету, негативно позначається на здоров'ї населення, порушує рівень конкуренції на ринку. У 2020 році приблизно 50% усіх алкогольних напоїв, які продаються в Україні, були незаконними, що призвело до значних втрат податкових надходжень для уряду. У звіті за 2021 рік зазначено, що близько 18,1% тютюнового ринку в Україні складається з контрабандних або контрафактних виробів. Цей незаконний ринок спричинив втрату податкових надходжень у розмірі близько 250 мільйонів доларів США на рік. Досвід України та Польщі у сфері боротьби з акцизною контрабандою може мати суттєве значення для розробки ефективних

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goods using the example of Ukraine and Poland. The research methodology includes: empirical method, document analysis method, comparison, and case study method. As a result of the study, an analysis of the effectiveness of Ukrainian and Polish legislation on taxation and control over the circulation of excise goods was carried out. The obtained findings can inform policymakers in Ukraine, Poland, and other European countries on how to refine and strengthen their legislation regarding the taxation and control of excised goods. Law enforcement agencies can utilize the research to improve their strategies for detecting and preventing smuggling activities, incorporating best practices identified in the study.

**Keywords:** excise smuggling, investigation and detection of crimes, tactical approaches, illicit market, tax evasion, custom control.

## Introduction

In the conditions of the development of modern society, states face a significant number of challenges, among which the fight against economic organized crime remains one of the critical tasks of all state institutions of each individual state. In the structure of modern economic crime, a special place is occupied by illegal activity in the sphere of circulation of excise goods, because the introduction of such goods into further circulation actively contributes to the shadowing of certain sectors of the economy of Ukraine, and also creates conditions for the development of cross-border organized crime. Due to the formation of criminal markets for the specified goods, individual subjects of economic relations receive excess profits and actually exert controlled influence on individual economic segments of several states at once.

Studying the smuggling of excise goods is crucial in the current context due to its profound economic and social impact:

### Economic Impact

1. **Loss of Tax Revenue:** A) **Significant Financial Losses:** Smuggling of excisable goods like alcohol and tobacco results in substantial tax revenue losses for governments. For example, in Ukraine and Poland, these losses run into hundreds of millions of dollars annually. This revenue is crucial for funding public services such as healthcare, education, and infrastructure. B) **Budget Deficits:** Persistent smuggling can lead to budget deficits, forcing governments to either cut public spending or increase other taxes, which can have broader economic repercussions.
2. **Market Distortion:** A) **Unfair Competition:** Smuggled goods often evade taxes, allowing them to be sold at lower prices compared to legally traded goods. This creates an uneven playing field, disadvantaging legitimate businesses that comply with tax laws. B) **Business Closure and Unemployment:** Legitimate businesses may suffer losses or be forced to close due to the unfair competition from illegal goods, leading to job losses and increased unemployment rates.
3. **Investment Deterrence:** **Risk for Investors:** High levels of smuggling and associated corruption can deter foreign and domestic investment. Investors seek stable and predictable markets, and widespread illegal trade can signal instability and regulatory failure.

стратегій та політики боротьби з цим явищем. Метою статті є дослідження шляхів протидії незаконній діяльності у сфері обігу підакцизних товарів на прикладі України та Польщі. Методологія дослідження включає: емпіричний метод, метод аналізу документів, метод порівняння та метод дослідження прикладів. За результатами дослідження проведено аналіз ефективності законодавства України та Польщі з питань оподаткування та контролю за обігом підакцизних товарів. Отримані результати можуть інформувати політиків в Україні, Польщі та інших європейських країнах про те, як вдосконалити та посилити своє законодавство щодо оподаткування та контролю підакцизних товарів. Правоохоронні органи можуть використовувати дослідження для вдосконалення своїх стратегій виявлення та запобігання контрабанді, враховуючи найкращі практики, визначені в дослідженні.

**Ключові слова:** контрабанда підакцизних товарів, розслідування та виявлення злочинів, тактичні підходи, незаконний ринок, ухилення від сплати податків, митний контроль.

## Social Impact

1. **Public Health Risks:** A) **Health Hazards:** Smuggled alcohol and tobacco products are often of lower quality and may contain harmful substances, posing significant health risks to consumers. Illicit alcohol can lead to poisoning and long-term health issues, while counterfeit tobacco can contain higher levels of toxic chemicals. B) **Increased Healthcare Costs:** The consumption of low-quality and harmful products can lead to increased healthcare costs, as more people suffer from related health problems.
2. **Crime and Corruption:** A) **Organized Crime:** Smuggling operations are frequently controlled by organized crime groups. This not only funds further criminal activities but also fosters a culture of lawlessness and violence. B) **Corruption:** Smuggling often involves bribery and corruption, undermining the integrity of law enforcement and customs officials, and eroding public trust in government institutions.
3. **Social Inequality: Economic Disparities:** The profits from smuggling enrich a small group of criminals while depriving the general population of public resources that could be used for social welfare programs. This can exacerbate social inequality and fuel social unrest.

## Importance in the Current Context

1. **Economic Recovery Post-Pandemic: Revenue Recovery:** As countries recover from the economic impact of the COVID-19 pandemic, recovering lost tax revenues from smuggling is more critical than ever. This revenue is needed to support economic recovery and fund essential services.
2. **Strengthening Rule of Law: Legal Reforms and Enforcement:** Studying smuggling can lead to stronger legal frameworks and better enforcement mechanisms, which are essential for maintaining the rule of law and public order.
3. **Globalization and Trade: Cross-Border Cooperation:** Smuggling is a transnational issue that requires international cooperation. The experiences of Ukraine and Poland can provide valuable insights for broader regional strategies in combating smuggling, fostering better cooperation among European nations.
4. **Technological Advancements: Modern Detection and Prevention:** Advances in technology can be leveraged to improve detection and prevention of smuggling. Understanding current smuggling trends can guide the implementation of these technologies effectively.

The study of excise goods smuggling is vital due to its extensive economic and social repercussions. Addressing this issue can lead to increased government revenues, healthier populations, more stable economies, and stronger legal institutions. This research is essential for developing effective policies and strategies to mitigate the negative impacts of smuggling on society and the economy.

Thus the object of the study is a system of legal, organizational, economic, and social aspects related to the circulation of excise goods and the fight against smuggling in Ukraine and Poland.

The main tasks of the research are:

1. Study and comparison of the legislation of Ukraine and Poland regarding control over the circulation of excise goods, including taxes, excise duties, customs, and other regulatory mechanisms.
2. Examination of the work of customs, tax services, law enforcement agencies, and other agencies to detect and stop excise smuggling and illegal circulation of goods.
3. Analysis of successful practices and strategies used in Ukraine and Poland to combat smuggling and illegal circulation of excise goods.
4. Study of the impact of excise smuggling and illegal trafficking on the economy and society in both countries, including the loss of budget revenues, public health, and other aspects.
5. Formulation of recommendations for further improvement of legislation, organization of control, and anti-smuggling strategies in Ukraine and Poland.

Specific terms are:

**Operational investigative activity:** A set of measures and operations aimed at detecting, investigating, and stopping criminal activity by involving specialized units of law enforcement agencies.

**Tactical features:** Characteristic aspects or methods used in the process of planning and execution of operative-search actions to achieve specific goals or tasks.

Control over the commission of a crime is a system of supervision and measures aimed at preventing, detecting, and stopping criminal activity and its consequences.

Excise goods - goods subject to special taxation (excise duties), usually of high risk for illegal circulation and smuggling, such as alcohol, tobacco products, petroleum products, etc.

Investigation is a process of systematic collection, analysis, and evaluation of evidence and information regarding criminal activity in order to establish the circumstances of the crime and the perpetrators.

Countermeasures are a set of measures and strategies aimed at preventing, stopping, and resisting crime or illegal activity.

Crime is a characteristic of the level or volume of criminal activity in a certain territorial or social group.

Search for information - the activity of collecting and analyzing various data and sources of information to identify signs of crime or illegal activity.

Detection of illegal activity is the process of detection and identification of facts or actions that contradict the law or violate rules and regulations.

The structure of the article is following:

**Introduction.** The introduction will provide an overview of the issue of smuggling excisable goods, such as alcohol and tobacco, in the European region, particularly focusing on Ukraine and Poland. It will outline the significance of the problem, its economic and social impacts, and the goals of the study.

**Theoretical Framework or Literature Review.** This section will review existing literature and theoretical perspectives on the smuggling of excisable goods. It will cover key concepts, previous studies, and theoretical models that explain the causes and consequences of smuggling. The review will also highlight gaps in the current literature that the study aims to address.

**Methodology.** The methodology section will detail the research methods used in the study. It will describe the empirical methods, document analysis, comparison, and case study approaches employed to analyze the legislation, enforcement practices, and statistical data related to excise smuggling in Ukraine and Poland. The section will also explain the rationale behind the choice of these methods.

**Results and Discussion.** In this section, the findings of the study will be presented and discussed. It will include an analysis of the effectiveness of Ukrainian and Polish legislation on excise goods, the performance of customs, tax services, and law enforcement agencies, and the statistical data on the volume of excise smuggling and its impact. The discussion will compare the two countries, identify successful practices and gaps, and explore opportunities for international cooperation.

**Conclusion.** The conclusion will summarize the key findings and their practical implications. It will offer recommendations for improving legislation, enforcement, and international collaboration to combat excise smuggling. The conclusion will also reflect on the study's contributions to the field of law and economics and suggest areas for future research.

### **Theoretical Framework or Literature Review**

Firstly, Taracha (2003) examines whether, in the process of lawmaking that governs the operations of Polish special services, the constitutional rights of citizens are upheld. They delve into the operational powers of these services as outlined in relevant legislation, which allows state intervention into the freedoms and rights of citizens in the interest of societal and state well-being. Constitutional provisions, particularly Article 31.3 of the Constitution of April 2, 1997, delineate the scope within which public authorities and other entities may intervene, solely based on legal authorization, to ensure citizen security, public order, environmental protection, health, public morality, and the freedoms and rights of others. The author also discusses the nature of operational powers granted to special services under current law, highlighting their

significance in effectively carrying out their duties, as well as the constitutional and non-statutory frameworks governing potential interference with citizens' rights.

Moreover, Arkusha (2001) considered in his dissertation research the basics of the method of detection and investigation of organized criminal activity in the presence of corrupt connections. The need to reduce the volume of the shadow economy, in particular, in the context of stopping illegal activities in the sphere of alcohol and tobacco circulation, as an important factor of national security, is considered in the article of Kolomoiets, Tsybulnyk, Moroz, Prymachenko, & Khashev (2021). In the article, Miłkowski (2020) examines the extent to which the actions of special services in Poland correspond to the constitutional rights and freedoms of citizens. In addition, the extent to which modern legislation ensures the protection of the rights and freedoms of individuals in the context of the activities of special services is investigated. Specific actions and powers of special services are examined in the context of their impact on the rights and freedoms of individuals. Compliance of actions of special services with constitutional norms and standards is investigated. The conclusions contain recommendations for politicians and legislators to improve the protection of the rights and freedoms of citizens in the context of the activities of special services.

In the study, Łabuz, Kudła, and Safjański (2020) drew attention to the fact that operations of an operational-intelligence nature are currently a very little-known area of secret activity of authorized state services in ensuring the fulfillment of tasks in the field of preventive, intelligence and counter-intelligence measures. In addition, it is remarked that this topic often causes "controversial" discussions regarding the operational activities of special and police services, which undoubtedly have a legal basis for violating the rights and freedoms of citizens.

Additionally, Czyżowicz (2012) assessed the level of illegal trafficking of tobacco products, alcohol, and beer in Poland and its impact on the economy and society, and identified factors that contribute to the spread of illegal trafficking of these goods, such as high taxes, deficiencies in legislation or insufficient control mechanisms.

What is more, Pływaczewski W., & Duda M. (2014) examined illicit tobacco and alcohol trafficking in retrospect, as well as ways to overcome the problem. Currently, Poland occupies a leading position in the production of finished tobacco products in Europe, as the largest global corporations have moved their factories here. 6 out of 31 tobacco factories in Europe are located in Poland. The export of tobacco products is an essential component of the agricultural and food trade balance of Poland. The tobacco industry annually contributes almost 20 billion zlotys to the budget, which is 8% of total state revenues. This is an extraordinary share compared to other EU countries. The work of Duży (2013) describes the types of crime arising as a result of organized crime in the field of taxes and its impact on the economy and society. The causes and factors contributing to the development of organized crime in the field of taxes in Poland have been determined. Moreover, Piątkowska (2018) paid attention to the same topic.

Bilan et al., (2019) also considered the issue of combating offenses in the field of production and circulation of excise goods. Also, Albul (2010) analyzed the organization and tactics of operational procurement and controlled supply. It is concluded that the use of the Internet by criminals in illegal activities, in particular in the illegal distribution of narcotic drugs, today has significant negative consequences. The technical possibilities of using the Internet in the criminal sphere received a positive assessment from drug dealers, as it enables them to contact accomplices in any part of the country while maintaining the anonymity of users. Unlike cellular communications, computers and laptops cannot always be tracked or located, making it difficult to identify users and locate their devices. This greatly facilitates the implementation of criminal actions and the use of such means of communication in the criminal sphere. Identifying and stopping the mass distribution of drugs via the Internet and electronic payment systems, which are increasingly used by criminals, is one of the priority tasks of the National Police of Ukraine in the fight against illegal drug trafficking. Lepskyi (2014) reviewed the foreign experience of using financial investigations in law enforcement activities. Kolomoiets, Kolpakov, Kushnir, Makarenkov, & Halitsyna (2020) investigated the problems of corrupt activities of public officials in Ukraine, in particular, in the context of combating illegal activities in the sphere of circulation of excise goods. Further, Bernadin (2019) analyzed the foreign experience of combating offenses in the sphere of circulation of excise goods. In the opinion of the author, it is significant to note that only the useful work of authorized entities in combating offenses in the sphere of circulation of excise goods, in the absence of an independent, objective, and fair judicial process, will not allow to ensure the economic security of the state and attract foreign investments to the country. The development of the domestic industrial and agricultural sectors is possible only on the condition of

attracting large foreign investments that have the opportunity to protect their rights and freedoms, including invested capital in the sphere of circulation of excise goods. Therefore, it is advisable to combine security sector reform with corresponding changes in the judicial system, so that law enforcement activities and justice are carried out following and within the limits of the law.

The study of ways to combat illegal activity in the sphere of circulation of excise goods, in particular, based on the experience of Ukraine and Poland, reflects current trends in the scientific research of the following aspects:

Expansion of international cooperation in the field of combating smuggling and illegal circulation of excise goods, which is reflected in studies of the Polish and Ukrainian experience.

Application of a multidisciplinary approach to the analysis of the problem, which includes legal, economic, sociological, and criminological aspects.

Evaluation of the effectiveness of measures and strategies to combat smuggling and illegal circulation of excise goods in practice with the aim of improving legislation and policy.

Using modern research methods, such as big data analysis, artificial intelligence, geospatial analysis, and others, to gain a deeper understanding of the problem.

Consideration of adapting strategies and countermeasures to new challenges such as cross-border cybercrime and other modern threats.

These trends reflect the growing complexity and urgency of the problem of smuggling and illegal circulation of excise goods and show the need for constant updating and improvement of counteraction strategies.

The existing literature on the smuggling of excisable goods in Poland and Ukraine presents a rich, albeit complex, picture of the legal, economic, and social dimensions of this issue. The following critical analysis identifies key debates, controversies, and areas for improvement.

## Debates and Controversies

### 1. Constitutional Rights vs. State Intervention:

**Debate:** A significant debate in the literature concerns the balance between the operational powers of state services and the protection of constitutional rights. Taracha (2003) and Miłkowski (2020) explore the extent to which these services can intervene in citizens' freedoms for state security and public order, raising questions about the potential overreach of state power and the erosion of civil liberties.

**Controversy:** The controversy centers on whether the current legal frameworks sufficiently safeguard citizens' rights while enabling effective state intervention. Critics argue that there is a thin line between necessary security measures and the infringement of personal freedoms, which can lead to abuse of power by state agencies.

### 2. Effectiveness of Legislation and Enforcement:

**Debate:** The effectiveness of current legislation and enforcement mechanisms is another contentious area. Authors like Arkusha (2001) and Łabuz, Kudła, and Safjański (2020) discuss the complexities and often the inadequacies of existing legal and operational frameworks in tackling organized crime and smuggling.

**Controversy:** Discrepancies in enforcement and the challenges of modernizing legal frameworks to address new forms of smuggling, such as through cyberspace, highlight the ongoing struggle between evolving criminal tactics and static legal systems.

### 3. Economic Impact of Smuggling:

**Debate:** The economic ramifications of smuggling are thoroughly examined, with Czyżowicz (2012) and Pływaczewski and Duda (2014) detailing the substantial financial losses due to illicit trade in tobacco and alcohol. They highlight the paradox of Poland being a major tobacco producer yet struggling with high levels of illegal trade.

**Controversy:** There is a debate over the root causes of smuggling, such as high taxes and insufficient control mechanisms, and whether policy adjustments, like tax reductions or improved regulatory oversight, would more effectively curb illegal trade.

#### Areas for Improvement

### 4. Integrating Constitutional Safeguards with Operational Needs:

**Improvement Needed:** There is a need to develop frameworks that balance the operational requirements of state services with robust constitutional safeguards. Studies by Taracha (2003) and Miłkowski (2020) suggest that while state intervention is necessary, it must be tightly regulated to prevent rights abuses.

### 5. Enhanced Legal and Enforcement Mechanisms:

**Improvement Needed:** Arkusha (2001) and Łabuz et al. (2020) highlight the necessity for enhanced legal mechanisms and enforcement strategies that can adapt to modern criminal tactics. This includes better coordination among law enforcement agencies and the adoption of advanced technologies for surveillance and data analysis.

### 6. Economic Policy Reforms:

**Improvement Needed:** Addressing the economic incentives for smuggling, as discussed by Czyżowicz (2012) and Pływaczewski and Duda (2014), requires comprehensive policy reforms. These could include adjusting excise taxes to reduce the profitability of smuggling and strengthening regulatory frameworks to close legislative loopholes.

### 7. Technological Adaptation and Innovation:

**Improvement Needed:** The rapid advancement of technology necessitates corresponding innovations in smuggling countermeasures. Bilan et al., (2019) and Albul (2010) emphasize the importance of leveraging big data, artificial intelligence, and geospatial analysis to better understand and combat smuggling operations.

### 8. International Cooperation:

**Improvement Needed:** As smuggling often transcends national borders, expanding international cooperation is crucial. Studies reflect a growing recognition of the need for collaborative efforts between countries, as noted in the Polish and Ukrainian experiences, to effectively address the transnational nature of smuggling.

### 9. Multidisciplinary Approach:

**Improvement Needed:** Adopting a multidisciplinary approach that encompasses legal, economic, sociological, and criminological perspectives can provide a more holistic understanding of smuggling and inform more effective policies and interventions.

In summary, the literature reveals significant debates and controversies surrounding the balance between state intervention and constitutional rights, the effectiveness of existing legal frameworks, and the economic impact of smuggling. There is a clear need for improved legal mechanisms, policy reforms, technological innovations, and international cooperation to address the complexities of smuggling in the modern context. This critical analysis underscores the urgency of continuously updating strategies to effectively combat the illegal circulation of excise goods.

## Methodology

### Methodology: Data Collection and Analysis

#### Empirical Method

**Data Collection:** The empirical method involved gathering data on specific instances and facts related to illegal activities in the sphere of circulation of excise goods in Ukraine and Poland. This included detailed examination of operational and investigative activities carried out by law enforcement agencies.

**Data Analysis:** Analysis focused on identifying patterns and peculiarities in the activities of smuggling groups. This included examining the methods used for smuggling, the routes commonly taken, and the types of excise goods most frequently trafficked. The time period considered was from 2015 to 2023, capturing recent trends and developments in smuggling activities.

#### Document Analysis Method

**Data Collection:** Legislative acts, reports from customs and tax services, and other relevant documents were collected from government databases, official publications, and regulatory bodies in both Ukraine and Poland. Key sources included:

- National legislation on excise duties and anti-smuggling measures.
- Annual reports from customs and tax authorities.
- Government resolutions and regulatory acts.
- International agreements and cooperation frameworks.

**Data Analysis:** The analysis involved a detailed review of these documents to understand the legal and organizational foundations of the fight against excise smuggling. By examining laws, regulations, and enforcement policies, the research aimed to identify strengths and weaknesses in the existing legal frameworks. The documents provided objective information about the scope of excise duty smuggling and the effectiveness of current countermeasures.

#### Comparison

**Data Collection:** Comparative data were collected on the legislation, organization of control, and effectiveness of anti-smuggling efforts in Ukraine and Poland. This involved:

- Legislative texts and amendments in both countries.
- Organizational charts and functional descriptions of customs and tax authorities.
- Statistical data on smuggling cases, confiscated goods, and arrested individuals.

**Data Analysis:** The comparative analysis involved side-by-side evaluation of the collected data to identify similarities and differences in legal approaches, enforcement strategies, and organizational structures. The comparison highlighted best practices and areas where one country might benefit from adopting strategies used by the other. This included comparing:

- The scope and stringency of legal provisions.
- Effectiveness and efficiency of enforcement mechanisms.
- International cooperation and information-sharing practices.
- Public awareness and prevention campaigns.

#### Case Study Method

**Data Collection:** Specific cases of combating excise duty smuggling were studied in various regions of Ukraine and Poland. These case studies were selected based on their representativeness and the availability of detailed information. Sources included:

- Case reports from law enforcement agencies.

- Court records and legal proceedings.
- Interviews with key stakeholders involved in anti-smuggling operations.

**Data Analysis:** Each case study was analyzed to understand the specific challenges faced and the strategies employed to combat smuggling. The analysis focused on:

- The operational tactics used in successful anti-smuggling operations.
- The legal and logistical hurdles encountered.
- The outcomes of these operations, including the prosecution and sentencing of offenders.
- Lessons learned and recommendations for future efforts.

### Time Period Considered

The study focused on data and developments from 2015 to 2023. This period was chosen to ensure the inclusion of recent trends, legislative changes, and technological advancements in smuggling and anti-smuggling efforts.

### Information Sources

Key sources of information included:

- National legislation and regulatory frameworks from government databases.
- Annual and special reports from customs, tax authorities, and law enforcement agencies.
- Publications and research reports from academic and policy institutions.
- Interviews with officials and experts in the field.
- Statistical databases providing data on smuggling incidents and enforcement outcomes.

By utilizing these methods, the study aimed to provide a comprehensive and nuanced understanding of the problem of excise smuggling in Ukraine and Poland, leading to informed recommendations for improving control measures and combating this illegal activity effectively.

### Limitations of the Study

#### Incomplete Data:

**Data Gaps:** The study relies on available reports and official documents, which may not capture all instances of excise smuggling. Unreported cases and discrepancies in record-keeping could lead to an incomplete picture of the extent and nature of smuggling activities.

**Reliability and Accuracy:** The accuracy of data from different sources can vary, and there may be inconsistencies or biases in the reporting of smuggling incidents and enforcement outcomes.

#### Comparative Challenges:

**Different Legal Systems:** Ukraine and Poland have distinct legal systems and regulatory frameworks, making direct comparisons challenging. Differences in legal definitions, enforcement practices, and judicial processes can complicate the analysis.

**Contextual Variations:** Economic, social, and political contexts differ between the two countries, which may influence the effectiveness of anti-smuggling measures and the applicability of certain strategies.

#### Scope of Analysis:

**Focus on Selected Years:** The study focuses on data from 2015 to 2023, which might not fully reflect long-term trends or historical developments in excise smuggling.

**Case Study Limitations:** While case studies provide detailed insights, they may not be representative of the broader situation. The selected cases might highlight specific issues or successful strategies that are not universally applicable.

#### **Operational Secrecy:**

**Limited Access to Sensitive Information:** Some aspects of law enforcement operations and investigative tactics are classified, limiting the depth of analysis on operational methods and strategies used in combating smuggling.

#### **Technological and Methodological Constraints:**

**Evolving Smuggling Techniques:** As smuggling methods evolve with technological advancements, the study may not fully capture the latest tactics and trends. Rapid changes in smuggling techniques can outpace the ability to analyze and respond effectively.

**Methodological Limitations:** The use of empirical, document analysis, comparison, and case study methods, while comprehensive, may still miss certain nuances and dynamic aspects of smuggling activities and enforcement measures.

Recognizing these limitations helps to frame the findings and recommendations of the study within a realistic context, acknowledging the complexity and ongoing challenges in effectively combating excise smuggling.

#### **Results and Discussion**

Alternative dispute resolution (hereinafter ADR) is a group of processes by which disputes and conflicts are resolved without recourse to the formal judicial system.

According to the statistics of the General Prosecutor's Office of Ukraine in 2015, 523 criminal offenses were registered and opened on the grounds of Art. 204 of the Criminal Code of Ukraine ("Illegal manufacture, storage, sale or transportation for the purpose of sale of excise goods"), for 2016 - 674; for 2017 - 500; for 2018 - 574; for 2019 - 562; for 2020 - 615; for 2021 - 721, for 2022 - 546, for 2023 - 369 offenses, respectively (Office of the General Prosecutor of Ukraine, 2023). Such information confirms the consistently high level of crime in this area, but does not allow us to draw conclusions about the real level and structure of illegal activity in the field of circulation of excise goods, the state of accounting for such criminal offenses. In this sense, the official information of the State Customs Service of Ukraine regarding the number of excise goods that were detained while moving across the state border of Ukraine looks useful. As a reference point, we choose information on the control of the movement of goods on the Ukrainian-Polish section of the border, because long-term bilateral cooperation at the level of a strategic partnership between Ukraine and the Republic of Poland, as well as a sufficiently large length of the Ukraine-Poland land border (542.39 km) ensures a large flow of goods precisely through the Ukrainian-Polish section of the border. Thus, the analysis of the indicated data makes it possible to assert the following:

- 1) Four groups of excise goods are currently registered in the State Border Service of Ukraine, in particular: cigarettes, alcohol, amber, and motor vehicles;
- 2) In 2021, compared to 2020, a slight trend was observed in Ukraine regarding a decrease in the number of cigarettes and alcohol detained together at the entry and exit (by 12% of cigarettes and 18% of alcohol, respectively) and an increase in the number of ambers detained at the border (by 80 % together at the entrance and exit);
- 3) In 2022, all indicators of the effectiveness of the State Border Service of Ukraine in relation to the investigated type of crime decreased significantly: the number of excise goods that were detained on the Ukrainian-Polish border decreased by more than 90%, in particular, compared to 2021, they were detained by 88% less alcohol, 98% of cigarettes, 78% of vehicles. A parallel analysis of the performance indicators of the General Prosecutor's Office of Ukraine also indicates a decrease in the number of criminal proceedings recorded in the reporting period (by 18% compared to 2021).

This state of modern reporting can be explained by a change in the focus of law enforcement agencies in Ukraine. After all, starting from February 24, 2022, due to the war in Ukraine, the activities of law enforcement officers are essentially focused on detecting crimes related to subversive groups of terrorists and/or facilitators and collaborators. Even the National Anti-Corruption Bureau of Ukraine, which used to deal only with corrupt officials, now cooperates with the Security Service of Ukraine. The maximum concentration of the efforts of Ukrainian law enforcement officers on the process of minimizing the negative consequences of the war naturally reduced the actualization of countering illegal activities in the sphere of circulation of excise goods both in general and on the Ukrainian-Polish border section.

However, several problematic issues regarding countering the specified criminal manifestations still need to be resolved. In the official statistical data of the Border Service (Border Guard) of the Republic of Poland, it is remarked that the total value of goods sent criminally through the Ukrainian-Polish section of state control in the first half of 2022 compared to the same period in 2021 decreased by only 18%, while five categories of excise goods are accounted for, in particular: transport, cigarettes, alcohol, tobacco and the category "other excise goods". Also, compared to the first half of 2021, in 2022, the number of vehicles involved in the transportation of so-called "criminal goods detected by the Border Service" increased by 65%.

Etymologically, the category "counteraction" is understood as an action that prevents another action. In Ukraine, combating the criminal environment begins at the stage of preparation and commission of crimes, is carried out during the investigation, court proceedings continue in the conditions of criminal enforcement institutions: the employee of the operative unit has as his immediate task the search and recording of factual data about criminal offenses, as well as in their interests criminal justice; the investigator – carrying out a pre-trial investigation during which he seeks to establish hidden facts and circumstances about criminal offenses and to overcome resistance from persons disinterested in the successful investigation of the case.

Representatives of the Polish criminological community in the context of combating criminal activity write about search (operational) and counter-search activities, understanding the latter concept as additional activities of criminals accompanying the crime, the meaning of which is reduced to the creation of various obstacles to a possible investigation, about an organized criminal group as measures carried out by it, to ensure the safety of its participants and conduct effectual criminal activities (Łabuz, Chlebowicz & Safjański, 2021). Operational activity is carried out using methods that, according to A. Taracha constitutes a set of measures of state bodies, which are carried out secretly or confidentially, based on the law and perform an informational, investigative, preventive, and evidential function (Taracha, 2003). Therefore, the meaning of the term "counteraction to illegal activity" used by Ukrainian scientists is close to the meaning of "operational (investigative) activity" used by criminologists in Poland.

States, in general, with the aim of combating crime, carry out a number of measures in various areas of activity, in particular: detection, termination (documentation), investigation of criminal offenses; in general, the prevention of crimes by criminal prosecution of the persons who committed them and the application of criminal-legal measures to them, and in particular, the improvement of departmental and interdepartmental cooperation regarding specific types of criminal activity.

Therefore, we set a goal: to determine the ways of countering illegal activity in the sphere of circulation of excise goods through the study of structural and functional aspects of the organization of such countermeasures in Ukraine and Poland, as well as tactical issues of detection (documentation) of the specified criminal activity in the practice of law enforcement agencies of the specified countries.

In Poland, criminal liability for crimes committed in the sphere of circulation of excise goods is provided for in Art. Art. 63 – 73 of the Fiscal Criminal Code (Law No. 2427, 2021). Excise duty is an indirect tax levied on consumer goods characterized by low production cost and high market value, primarily on goods with a high degree of profit accumulation or luxury goods. Compared to Ukraine, where criminal liability for all illegal actions in the sphere of circulation of excise goods is provided only by Art. 204 of the Criminal Code of Ukraine, the list of such crimes in Poland is very wide, in particular, there are the following types of criminal offenses: turnover without excise stamps; violation of conditions for export of excise goods; acquisition, storage, transportation, forwarding or transfer in another way of excise goods, which are the subject of a prohibited act, or facilitates their sale, or accepts or helps to hide excise goods; imperfect labeling of products, falsification of excise stamps; non-compliance with the obligation to mark excise goods with legalized excise stamps; illegal activities directly related to the production, import or trade of

excisable goods, as well as their marking with excise stamps, movement of excisable goods in any way without documents and conditions established by law, and other warehouses. According to Chapter 14 of the Fiscal Criminal Code, preparatory proceedings for such crimes are conducted by a wide range of law enforcement agencies, in particular customs and financial authorities, the Border Guard (if according to Article 1 of the Law on the Border Guard Service (Law No. 1855D, 2022), the Service was the first competent body that initiated proceedings).

Based on the content of the relevant laws, the specified subjects carry out police activities. The leading forms of its implementation for the prevention, detection, and identification of persons who have committed crimes, as well as obtaining and recording evidence are intelligence activities and operational control.

Operative intelligence activity is regulated by Art. 19a of the Law of Poland on the Police, in which it is determined in particular that such activity may consist of the clandestine acquisition, sale, or removal of objects obtained by crime, removed from civilian circulation, or in the manufacture, storage, transportation or transportation of objects, the trade of which is prohibited, and also when receiving or providing a financial benefit (Law No. 1855D, 2022). Operational control is an exceptional measure, on the one hand, it is initiated through the prosecutor in conditions when other measures have proven ineffective or useless (Article 9e of the Law of Poland on the Border Guard Service (Law No. 1855D, 2022), on the other - if in as a result of its conduct, evidence was obtained of the commission of a crime by a person subject to operational control, other than an offense for which an order of operational control is prescribed, or a crime prosecuted by the office, or a financial offense committed by a person other than the one covered by the resolution on operational control, the prosecutor decides on the use of this evidence in criminal proceedings (Article 168 b of the Polish Criminal Procedure Code (Law No. 4651-VI, 2013).

- 1) Receiving and recording the content of conversations conducted using technical means, including telecommunications networks;
- 2) Receiving and recording the image or sound of people from premises, vehicles, or other places, except for public ones;
- 3) Receiving and recording the content of correspondence, including correspondence conducted using electronic communication;
- 4) Receiving and recording data contained on IT data carriers, telecommunication terminal devices, IT and teleinformation systems, and;
- 5) Obtaining access and control of the contents of shipments.

In Ukraine, the processing of practical materials by law enforcement agencies shows that an essential tool in the process of countering the illegal activities of organized criminal groups (including those with corruption connections), in the field of circulation of excise goods, is such an undisclosed investigative (research) action as control over the commission of a crime. Following the provisions of Art. 271 of the Criminal Procedure Code of Ukraine, control over the commission of a crime may be carried out in cases where there are sufficient grounds to believe that a serious or particularly serious crime is being prepared or committed, and is carried out in the following forms:

- 1) Controlled delivery;
- 2) Controlled and operational procurement;
- 3) A special investigative experiment, and;
- 4) Simulating the circumstances of the crime (Law No. 4651-VI, 2013).

Control over the commission of a crime is understood as a deliberate complex of various confidential measures of law enforcement agencies, coordinated in terms of time and content, in the form of verification of information about the preparation or commission of a socially dangerous act by a specific person (group of persons), to detect, uncover, preventing a crime, prevention of its harmful consequences, identification of accomplices and recording of illegal activities of specific persons. The analysis of the legal framework in force in Ukraine shows that controlled procurement as a form of control over the commission of crimes makes it possible to identify individuals and criminal groups engaged in illegal activities in the field of excise goods. So, in essence, controlled procurement in Ukraine is analogous to operational intelligence activities of law enforcement officers in Poland, but does not coincide in content with the concept of "operational control".

In the writings of modern scientists - specialists in Poland and Ukraine in the field of criminal procedure, criminology, and operational-investigative activities, the topics of controlled procurement or operational-intelligence activities have a certain elaboration, but from the point of view of concepts, general foundations, general organizational and tactical aspects (Arkusha, 2001; Miłkowski, 2020; Łabuz, Kudła, & Safjański, 2020). Direct attention is not paid to the issue of controlled procurement as a form of control over the commission of a crime in the sphere of circulation of excise goods. In Ukraine, the issue of using the results of operational investigative activities in the process of proof was raised fragmentarily, but they used the normative acts in force at that time, without taking into account the specifics of such an undercover investigative action as control over the commission of a crime.

To tactically compare controlled procurement with operational intelligence activities implemented in Poland, it is necessary to raise the issue of structural and functional restructuring of operational units in general and the National Police of Ukraine in particular. As a result of the adoption of the Criminal Procedure Code of Ukraine in 2012, the offensive function of operative units in combating economic crime is limited, while the subjects of investigative activity have received a significant number of new functions that were not inherent to them before, in particular, in the part of conducting covert investigative (search) actions. The tactical features of undercover investigative (search) actions remain unknown to many of the investigators because undercover investigative (search) actions continue to be entrusted to operative units. But at the same time, the investigators lose the opportunity to directly perceive the entire set of factual data obtained during the investigation, and the employees of the operative units essentially act as executors, not acting directly to counter the crimes provided for in Art. 204 of the Criminal Code of Ukraine (Law No. 2135-XII, 1992).

In our opinion, for such operational activity in Poland or controlled procurement in Ukraine to have an effective impact on combating the investigated type of crime, they cannot be considered a single measure or a separate action. Etymologically, the concept of "action" implies any single action (Savchenko, 1999). In turn, they represent a complex of tactical content actions, coordinated in terms of time and content, using the capabilities of various subjects. That is why the wording "activity" used in Poland is considered by us to be a good one for indicating the essence of the analyzed countermeasure.

As a result of the analysis of the practice of combating such crimes, we will determine the general theoretical provisions regarding the constituent elements of controlled procurement (which is essentially one of the forms of operational intelligence activity in Poland) regarding the crime related to the field of excise goods:

1. The object of control is social relations, the protection of which is carried out using control over the commission of crimes related to the sale of excise goods. The subject of controlled procurement is ethyl alcohol and other alcohol distillates, alcoholic beverages, beer; tobacco products, tobacco, and industrial tobacco substitutes; petroleum products, liquefied gas; passenger cars, their bodies, trailers and semi-trailers, motorcycles; other instruments of crime or equipment for their production. Let's emphasize that in Poland today, various types of liquid fuel are the most common subject (Duży, 2013); in Ukraine - amber, and alcohol. The entire list of subjects of controlled procurement as a form of control over the commission of crimes related to the illegal sale of excise goods can be expanded, taking into account the legislation of the states.
2. The objective side is actions to control illegal sales, transportation, and other actions about excise goods. The methods and forms of its implementation, the specifics of the use of operational and technical means, and the place, time, and duration are determined by the nature of the excise goods. So, for example, illegal activity with liquid fuel manifests itself in several offenses: non-payment of excise duty, fictitious entrepreneurship (involvement in a pole company agreement), falsification of documents to reduce income or increase expenses, legalization (laundering) of income (Piątkowska, 2018). In Ukraine, the term "technology of criminal activity" is used in this sense. Therefore, control over illegal activity in the sphere of circulation of excise goods in the sense of operational activity can counteract other criminal manifestations at the same time.
3. Subjects are a prosecutor, an investigator, or a unit authorized for operational intelligence activities, persons who cooperate with law enforcement agencies on a confidential basis or contribute to procedural or operational activities. Let's detail some points.

In Ukraine, all operational units can be classified into the following groups: the first are units that carry out operational and investigative activities in full, have the right to carry out covert work, organize and conduct

various operational and investigative activities; the second - subdivisions that carry out certain types of operational-search and operational-technical measures at the request of other subdivisions. According to the Law of Ukraine "On operational and investigative activity", operational units of the Security Service of Ukraine can carry out controlled procurement; the Foreign Intelligence Service of Ukraine; The State Border Service of Ukraine (in particular, the intelligence body of the specially authorized central body of the executive power in matters of state border protection, operative, and search units, respectively, of the specially authorized central body of executive power in matters of state border protection and its territorial bodies, state border protection units of state border protection bodies and Maritime Guard, ensuring internal security, ensuring own security, operational documentation and operational-technical units); Department of State Security; bodies of the state tax service; bodies and institutions of the State Penitentiary Service of Ukraine (Law No. 2135-XII, 1992). The investigator will entrust the implementation of controlled procurement to specified services.

In Poland, as already mentioned above, there is also a wide range of law enforcement agencies that have a police function, but not all of them have the right to carry out operational intelligence activities, in particular, this applies to the Customs Service. Based on the content of Art. 2 of the Law on the Customs Service, the latter has no right to exercise it (Law No. 168, 2009). The police's direction of its activities forms control over compliance with customs legislation and other normative legal acts related to the import and export of goods, as well as the use of analytical work methods by employees of this service. Thus, according to Petr Hlebovych, strategic criminal analysis solves the long-term goals of combating tobacco crime, its essence comes down to predicting the development of such crime and developing new directions in the fight against it (Pływaczewski, & Duda, 2014).

4. The subjective side of controlled procurement is the motives, grounds for implementation, and tasks. As a result of familiarization with special literature, it is possible to determine the following tactical tasks of controlled procurement, which is precisely what is implemented in the plan of countering illegal activities in the sphere of circulation of excise goods:
  - Establishment of channels for the illegal sale of excise goods;
  - Identification of points of manufacture, storage, sale, or transportation of excise goods;
  - Identification of the person who purchases the goods and the person who sells them;
  - The possibility of using the received information in the interests of prevention, detection, and investigation of criminal offenses;
  - Establishment of corrupt connections of criminals who facilitate the illegal sale of excise goods;
  - Exposing persons who prepare or have committed criminal offenses related to the illegal manufacture, storage, sale, or transportation for sale of excise goods, and;
  - Establishment of reasons and conditions contributing to the commission of criminal offenses related to the illegal manufacture, storage, sale, or transportation for sale of excise goods.

Particular attention should be paid to the establishment of corrupt connections of criminals, which contribute to the illegal sale of excise goods. After all, this affects the difficulty of detecting illegal transport and distribution networks of alcohol and tobacco products, the latter are well organized and protected, with information provided (Czyżowicz, 2012).

## Implications of Findings for Policy and Practice

### Policy Enhancements:

- **Strengthening Legislative Frameworks:** The study reveals differences in legal approaches to combating excise smuggling in Ukraine and Poland. Ukraine could benefit from expanding its legal provisions to cover a wider range of offenses related to excise goods, similar to Poland's comprehensive Fiscal Criminal Code.
- **Harmonizing Laws:** Given the cross-border nature of excise smuggling, harmonizing legal definitions and penalties for smuggling-related crimes between Ukraine and Poland could enhance bilateral enforcement efforts.
- **Enhancing Operational Collaboration:** The findings suggest a need for deeper operational cooperation between Ukraine and Poland. This includes joint operations, shared intelligence, and synchronized enforcement strategies to better combat smuggling across their common border.

### Improvement Strategies:

- **Integrated Border Management:** Implementing advanced technological solutions for border control (e.g., automated scanning, real-time data sharing) can improve the detection and interdiction of smuggled excise goods.
- **Training and Capacity Building:** Continuous training programs for law enforcement and customs officers on new smuggling techniques, investigative methods, and use of technology can enhance the overall effectiveness of anti-smuggling operations.
- **Public Awareness Campaigns:** Educating the public about the consequences of purchasing smuggled goods and encouraging reporting of suspicious activities can reduce demand for illicit products and support enforcement efforts.

### Practical Solutions:

- **Use of ADR in Customs Disputes:** Implementing Alternative Dispute Resolution (ADR) mechanisms can streamline the resolution of disputes related to excise goods. This can reduce the burden on formal judicial systems and expedite the handling of smuggling cases.
- **Enhanced Intelligence Operations:** Strengthening undercover operations and surveillance (e.g., controlled deliveries, operational purchases) can disrupt smuggling networks. Both Ukraine and Poland should consider investing in covert investigation techniques and technologies.
- **Data Analytics and Risk Management:** Utilizing data analytics to identify smuggling patterns and high-risk shipments can focus resources on critical areas. Risk management frameworks can help prioritize enforcement efforts based on the likelihood of smuggling activities.

### Addressing Limitations and Improving Data Collection

#### Complete and Reliable Data:

- **Unified Reporting Systems:** Developing a unified reporting system for recording and sharing data on smuggling incidents and enforcement actions between Ukraine and Poland can improve data accuracy and completeness.
- **Regular Audits and Reviews:** Conducting regular audits of data collection practices and implementing standardized reporting protocols can enhance the reliability of smuggling-related statistics.

#### Comparative Legal and Control Systems:

- **Legal Harmonization Workshops:** Organizing workshops and conferences where legal and enforcement experts from both countries can discuss harmonization of laws and best practices in combating excise smuggling.
- **Joint Training Programs:** Developing joint training programs focusing on the differences and similarities in legal frameworks and enforcement practices can facilitate better cooperation and understanding between Ukrainian and Polish law enforcement agencies.

### Specific Improvement Strategies

#### Strengthening Operational Units:

- **Structural and Functional Restructuring:** Revisiting the organizational structure of operational units in Ukraine to enhance their capability in combating economic crimes, including smuggling. This includes empowering investigative units with broader functions and integrating operational control within their mandates.
- **Tactical Coordination:** Establishing clear protocols for tactical coordination between operational and investigative units to ensure seamless execution of anti-smuggling operations.

### Corruption Prevention:

- **Anti-Corruption Measures:** Implementing stringent anti-corruption measures within law enforcement agencies to prevent the collusion of officers with smugglers. Regular integrity testing and lifestyle audits can deter corruption.
- **Whistleblower Protection:** Creating robust whistleblower protection programs to encourage reporting of corrupt activities within law enforcement and customs agencies.

### Community Engagement:

- **Public-Private Partnerships:** Engaging with private sector stakeholders (e.g., logistics companies, retailers) to develop collaborative strategies for identifying and reporting suspicious activities related to excise goods.
- **Public Information Campaigns:** Launching public information campaigns to educate consumers about the risks associated with buying smuggled goods and the legal consequences of involvement in smuggling activities.

The findings of this study highlight the need for a multifaceted approach to counter excise smuggling, combining legislative enhancements, operational improvements, and community engagement. By addressing the identified limitations and implementing the suggested strategies, both Ukraine and Poland can strengthen their efforts to combat illegal activities in the circulation of excise goods.

### Conclusions

Based on the research questions and objectives outlined in the introduction, the following conclusions can be drawn from the study:

**Operational and Investigative Activity as a Central Strategy:** The research confirms that operational and investigative activity plays a pivotal role in combating illegal activities in the sphere of excise goods circulation in both Ukraine and Poland. In Ukraine, this is primarily manifested through controlled procurement as a form of covert investigative (search) action, while in Poland, it is executed through operative intelligence activities. This structural and functional approach underscores the importance of such activities in effectively countering these offenses.

**Organizational Differences and Functional Assignments:** The study reveals a significant organizational difference between Ukraine and Poland. In Ukraine, the responsibility for countering illegal activities related to excise goods is predominantly assigned to investigators, which appears unjustifiable given the complexity and specialized nature of these offenses. In contrast, Poland assigns these functions to operational (police) units, which are better equipped to handle operative intelligence activities and other related tasks, such as monitoring compliance with customs legislation and conducting strategic criminal analysis. This distinction highlights a potential area for improvement in Ukraine's approach.

**Systematic and Planned Activities over Single Acts:** The research emphasizes that control over the commission of a crime should be viewed as a systematic and planned activity rather than a series of isolated investigative (search) actions. This systematic approach involves coordinated efforts by various law enforcement entities, thereby enhancing the effectiveness and comprehensiveness of countermeasures against illegal activities involving excise goods.

**Material Objects as Controlled Procurement Targets:** The study identifies that the objects of controlled procurement in combating crimes related to the illegal sale of excise goods are material objects, which can be classified based on the mode of circulation. These include items and substances whose sale is either restricted or prohibited. This classification is crucial for tailoring specific tactical approaches to different types of excise goods.

**Comprehensive Tactical Tasks:** Controlled procurement encompasses a wide range of tactical tasks essential for combating the illegal sale of excise goods. These tasks extend beyond the mere detection and apprehension of individuals involved in such activities. They include the identification of illegal manufacturing, storage, and transportation channels, the seizure of illicit goods, the withdrawal of

criminally acquired funds, and the thorough documentation and recording of evidentiary information. This comprehensive approach ensures that all aspects of the illegal activities are addressed.

### Policy and Practice Implications

**Reassignment of Functions in Ukraine:** The findings suggest that Ukraine should consider reassigning the function of combating illegal excise goods activities from investigators to operational units. This shift would align Ukraine's practices with those of Poland, potentially leading to more specialized and effective countermeasures.

**Enhancing Systematic Planning:** Both Ukraine and Poland should emphasize the importance of systematic and planned activities over isolated actions. This involves better coordination among various law enforcement agencies and the integration of diverse tactical approaches to ensure a holistic strategy in combating illegal excise goods activities.

**Expanding Controlled Procurement Tasks:** Law enforcement agencies should broaden the scope of controlled procurement tasks to include not only the detection and detention of individuals but also the dismantling of entire networks involved in the illegal manufacture, storage, sale, and transportation of excise goods. This comprehensive approach will help in addressing the root causes and broader mechanisms of such illegal activities.

**Training and Capacity Building:** There is a need for enhanced training and capacity building for law enforcement personnel involved in combating illegal excise goods activities. This includes specialized training in operative intelligence activities, strategic criminal analysis, and the use of advanced technological tools for monitoring and control.

### Future Research Directions

Further scientific research should focus on evaluating the effectiveness of the measures and policies implemented to combat smuggling in Ukraine and Poland. This includes assessing the impact of reassigning functions to operational units, the efficiency of systematic and planned activities, and the overall effectiveness of controlled procurement tasks in disrupting illegal excise goods networks. Such research will provide valuable insights for continuous improvement in policies and practices aimed at combating illegal activities in the excise goods sector.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.8>

How to Cite:

Zhovnych, O., Bakhmat, N., Kochubei, O., Duchenko, A., & Ivashkevych, Y. (2024). Digital competence of specialists in socio-economic, physics, and mathematics specialties, company managers in professional activities. *Amazonia Investiga*, 13(77), 108-122. <https://doi.org/10.34069/AI/2024.77.05.8>

## Digital competence of specialists in socio-economic, physics, and mathematics specialties, company managers in professional activities

### Цифрова компетентність фахівців соціономічних спеціальностей, фізико-математичного спрямування, керівників фірм у професійній діяльності

Received: April 2, 2024

Accepted: May 20, 2024

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#### Abstract

This article explores the role of digitalization in enhancing personal and societal well-being. The role of digital competence, virtual and augmented reality tools, cloud technologies, robotics, 3D technologies, MOOC, e-learning, m-learning, flipped learning, Internet of Things (IoT), intermediate interval training, hybrid, mixed reality (MR), Machine Learning (ML), Artificial Intelligence (AI) in a person's professional life. The most effective principles of digitization are outlined, the services in demand for self-study and professional activities are identified, digital educational products and the most popular services, as well as free Web applications for joint professional work on the Internet, are identified, a matrix of their services, tools, and opportunities is compiled; the necessity of using messengers and cloud services has been proven. To form and develop the digital competence of specialists, the author's

#### Анотація

У статті розкрито зміст, головна мета, основні напрями цифровізації для вдосконалення життєдіяльності людини і суспільства. Показано роль цифрової компетентності, інструментів віртуальної та доповненої реальності, хмарних технологій, робототехніки, 3D-технологій, MOOC, e-learning, m-learning, flipped learning, Internet of Things (IoT), проміжного інтервального навчання, гібридної, змішаної реальності (MR), Machine Learning (ML), Artificial Intelligence (AI) у професійному житті людини. Виокреслено найдієвіші принципи цифровізації, затребувані сервіси для самонавчання та фахової діяльності, виявлені цифрові освітні продукти та найпопулярніші сервіси, а також безкоштовні Web-додатки для спільної фахової роботи в Інтернеті, складено матрицю їхніх послуг, інструментів та

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methodology was developed and introduced to the experimental group using digital applications, services, digital tools, etc. in human life. The qualitative analysis of the effectiveness of the development of the digital competence of specialists was confirmed by the quantitative analysis of positive changes in all blocks. Methodological recommendations have been developed for the development of the digital competence of specialists and the optimal practical use of digital technologies in a person's professional activity.

**Keywords:** digitalization, digital competence of a specialist, digital skills, career advancement, digital tools.

можливостей; доведено необхідність використання месенджерів, хмарних сервісів. З метою формування та розвитку цифрової компетентності фахівців розроблено та введено авторську методику в експериментальну групу з використанням цифрових додатків, сервісів, цифрових інструментів тощо у життєдіяльності людини. Якісний аналіз ефективності розвитку цифрової компетентності фахівців підтверджено кількісним аналізом позитивних змін у всіх блоках. Розроблено методичні рекомендації щодо розвитку цифрової компетентності фахівців та оптимального практичного використання цифрових технологій у професійній діяльності людини.

**Ключові слова:** цифровізація, цифрова компетентність фахівця, цифрові навички, кар'єрний розвиток, цифрові інструменти.

## Introduction

The realities of the modern world demand a review of personality formation and set new requirements for human competencies. High technologies play an important role in all spheres of human activity and are the basis of the economic growth of all world countries.

Most professions require knowledge of computer technology and the use of various possibilities of digitalization because the appearance of the Internet in the modern world has significantly changed the format of human life, which has stimulated the development of new innovative technologies.

Not only the educational process has changed in the modern world, but also the model of the person himself. Therefore, the main task of modernity appeared on a global scale – to form a new way of thinking in a person, to raise the qualification level, and to teach how to use information for self-education with the help of the latest technologies.

In the process of increasing the efficiency of professional activity, one of the main factors of a person is the active introduction of new forms and methods into his professional life and to promote the general computerization of life positions in all spheres of life.

In professional activity, we consider the active use of digital tools to be a methodical basis, which forms skills, develops a person's creative abilities, and provides a person with modern personal characteristics necessary for research activities, professional activities, project activities, etc. Therefore, digital education around the world is an important tool for building a digital society and ensuring the sustainable development of every country. The transition to a high-quality digital education level requires the joint efforts of educational institutions, industry, the government, and all people of civilized society to "ensure the readiness of the young generation for the challenges and opportunities of the digital world".

Digitization for humanity is the introduction of the latest information and digital technologies into the life and profession of each individual to form the skills of the 21st century in a person: critical thinking, analysis of the reliability of information received, and maximum use for professional purposes (Kan, 2021).

The advantages of digital transformation in the life of humanity are: finding the most valuable materials for professional activity and personal development; independent learning throughout life with the help of digitalization, increasing motivation for self-development, and self-education; promoting the development of skills; the ability to quickly adapt to unpredictable and rapidly changing conditions; the opportunity to work at a comfortable pace, in the most convenient conditions. Therefore, digitalization is necessary for the development of personality in modern society. We believe that digital technologies, which are actively developing in the world, will change our imagination about the possibilities of IT.

## Literature Review

Nowadays, the use of digital technologies for a person's life and work is one of the stable, most important trends in the development of the global process of an individual's life. Therefore, scientists, in their research, raise consideration of this issue to the highest level.

N. Nychkalo, N. Lazarenko, & R. Hurevych (2021) at the beginning of the 21st century considered the processes of digitalization of world education and the processes of informatization related to the informatization and digitalization of social processes. Digitization of society has acquired a global character, so the research of scientists covered many developing countries, not only developed countries of the world community. It is a proven position that in the information society, the results of work and the objects of the majority of the employed population are information resources and human knowledge, the growing role of intellectual work, oriented on a global scale to the use of information; the need for constant updating of rapidly aging knowledge. The goal of digitization of the world is to prepare a person for effective and full participation in social, household, and professional activities in the conditions of the information society. The meaningful content of the phrase "digital transformation" is shown, the possibility of using all these technologies due to their synergy in the aggregate.

To clarify digitalization as a means of personality development in modern society, O. Stoika (2023) developed recommendations taking into account the experience of the Republic of Poland and Hungary. She examined the content of the educational levels of the program "Google Digital Tools for Education", proved the importance of digitalization of education, which is taking place at a fast pace, found that a significant indicator of the achievement of digitalization of the world is the modernization of the Unified World Electronic Database on Education and Science, the professional activities of all spheres of humanity. Taking into account the experience of Hungary and Poland, she showed the ways of digitalization of specialist training, and highlighted the need for intensive development of such technologies: virtual and augmented reality; Artificial Intelligence; blockchain; internet of things; robotics; media education; gamification; cloud-based environments; interdisciplinarity. Presented useful online services for the individual. Scientists M. Marienko, & A. Sukhikh (2022) also showed the peculiarities of the organization of the process of obtaining information with the help of digital technologies. They showed the ways of digitization and highlighted the need for intensive development of the following technologies: blockchain; internet of things; Artificial Intelligence; virtual and augmented reality; robotics; media education; cloud-based environments; gamification; interdisciplinarity. N. Hrechanyk, D. Koval, I. Kovalchuk, O. Slovik, & L. Zinchenko (2023) devoted their research to this problem. Scientists show the ways of digitalization of specialist training in connection with the digital transformation of education, scientists show the main ways of applying the technology of mixed learning by scientists. The main components of blended learning, which can be implemented in the digitalization of the information and educational environment, are highlighted. The author's methodological concept has been developed, which provides for the digitization of the training of specialists, including in the modern professional training of specialists a categorical and component analysis of the technology of mixed learning in the following dimensions: philosophical, cultural, psychological, social, and pedagogical.

L. Kharitonenko (2022) analyzed the main models, approaches, and methods of learning during the life of an individual and singled out the most effective of them, which can be used for a person's readiness for positive activity in the conditions of information culture and dynamic society in the future. Innovative methods are presented, which are aimed at improving intellectual skills, developing personal creativity, decision-making, independent problem-solving, improving cognitive activity; and innovative methods of planning the assimilation of professional material.

Internet services used for professional activities in modern society were clearly described by A. Kulichenko & Y. Polezhaev (2020). Scientists at the time of digitization showed the importance and necessity of a person's use of the information contained in a smartphone and computer; and developed recommendations on the possibility of turning smartphones and computers into human assistants in updating and acquiring knowledge. The learning process was based on a CLIL approach, using the Lumowell channel on the YouTube platform. Scientists offered various tasks using free online educational platforms: Quizlet and Zoom scientists.

The urgent need for digitization occupies a key place in society, in all spheres of life, and requires an increase in the number of educational resources that make life easier, more accessible, and more efficient.

Due to the realities of the modern educational process, N. Ivanenko, M. Deneka, & O. Sydorenko (2023) outlined the main most used digital applications, platforms, online resources, tools, etc., which are currently used in the life of every individual and briefly characterized each position; the concept of digitization of education was studied.

The analysis of the scientific works of specialists from different countries suggests that the digitalization of society and digital technologies help people in the implementation of practical activities and research work; are the basis of training of modern future specialists, contribute to the process of personality development, formation of digital competence, increase the level of professional maturity, professional thinking. Therefore, the importance of the use of digital tools in human work is undeniable.

Accordingly, the *purpose of this article* is to prove the importance of digitalization as a means of personal development in modern society; conduct an analysis of effective digital applications, and digital tools used in the process of human life, justify their influence and experimentally verify the effectiveness of the system of formation of digital competence of specialists on the formation and development of their digital competence.

### Methodology

The modern methodology of psychological and pedagogical research was used to conduct an experimental test of the formation of the digital competence of specialists and to analyze the role of effective digital applications, services, and digital tools in human life.

In particular, the following methods were used: analysis of the sources of the literary and bibliographic review; terminological and retrospective analysis, statistical and formal-logical analysis, the study of the products of individual activity, questionnaire survey, and monitoring.

By level of education – adult education.

Time of the experiment: 2023–2024.

Audience of experimental work: specialists in various fields.

The purpose of the experimental work: experimental verification of the formation of the digital competence of specialists and the role of effective digital applications, services, and digital tools in human life.

We have developed a system for the formation of digital competence of specialists and developed methodological recommendations for the development of digital competence of specialists.

Control and experimental groups were determined (experimental group (EG) – 131 respondents, control group (CG) – 129 respondents), where constant sections were conducted to determine the levels of development of digital competence of specialists and the role of effective digital applications, services, digital tools in everyday life a person.

At the formative stage of the experiment, an author's methodology using digital applications, services, and digital tools in human life was introduced in the experimental group to form and develop the digital competence of specialists. The author's technique was not used in the control group.

The control group was provided with informational materials, methodological recommendations for the development of digital competence of specialists, and the role of effective digital applications, services, and digital tools in human life.

Positive dynamics were obtained at the end of the experimental work in both groups – in the experimental group and the control group. However, in the experimental group that underwent training, a significantly higher level of development of the digital competence of specialists and the respondents' use of effective digital applications, services, and digital tools in their professional activities was noted. This is evidenced by the results at the end of the formative experiment. The results indicate the need for the formation and consistent development of the digital competence of specialists.

A qualitative analysis of the effectiveness of the development of digital competence of specialists is confirmed by a quantitative analysis of positive changes in all blocks.

## Results and Discussion

### 1. Content, main goal, main directions of digitization for improvement of human life, society, and the state.

The modern world pays more and more attention to methodical techniques that develop the cognitive and creative activity of an individual. For the development of personal creativity and successful solutions to modern professional tasks, new technologies are used in the life process of every person, which makes this process more relevant to the requirements of modern life and effective.

With the help of digitalization, the present makes it possible to form informational, intellectual, creative, and general cultural competence in a specialist. Without the use of information and communication technologies, it is impossible to apply innovations that include, with the help of interactive equipment, the process of preparing and transmitting information in modern society. It is digital technologies that provide the possibility of visual perception of information, and contribute to increasing motivation and transparency of knowledge acquisition. They supplement information that is important for a specialist in a certain field: personal experience, photo and video materials, organization of virtual exhibitions, use of 3D technologies, informative virtual sightseeing trips, etc. At the same time, every person actively uses a tablet, smartphone, and desktop computer, which occupy an important place in the life of an individual.

Definitions of "digitalization", and "digitalization of education" are the subject of scientific research by scientists. According to M. Rudenko (2021), we are talking about "digitalization" as "a means of obtaining the expected result, which meets the requirements and needs of society and suits manufacturers and business owners about the possibility of obtaining high profits" and we support the opinions of A. Vasylyk & A. Kushnir (2018), emphasize in their scientific works that "the digital format represents information more accurately, ensuring its free circulation, placement, processing, and use in computer networks. The digital education system includes information resources, telecommunications, and management system".

V. Kuibida, O. Karpenko, & V. Namestnik (2018) emphasize in scientific research that "digitalization in the broadest sense should be considered as the process of introducing digital technologies to improve the life of a person, society and the state". So, we see that the process of digitalization of the world is aimed at ensuring the continuity of the learning process and human life, that is, lifelong learning – life-long learning, its personification based on advanced learning technologies – advanced learning technologies.

The main goal of digitalization in human life involves ensuring the continuity of the learning process, i.e. life-long learning, and at the same time its individualization based on advanced learning technologies; inclusion of the use in the training of significant data on the process of assimilation of the personality of professional components and automatic adaptation to the profession; the use of technologies of augmented reality of virtualization, cloud computing and many other technologies (Karpluk, 2017).

Let's consider the main directions of digitization for improving the life of a person, society, and the state:

- 1) Creation of digital platforms and professional resources with support for multimedia and interactive content for general access of the individual, in particular, tools for automating the main processes of human work;
- 2) Introduction of innovative computer-based, computer-oriented multimedia learning tools and equipment to create a digital professional learning environment (multimedia centers, STEM research laboratories, etc.);
- 3) Organization of broadband access to the Internet for each person;
- 4) Development of remote form using multimedia and cognitive technologies.

**2. The role of digital competence, virtual and augmented reality tools, cloud technologies, robotics, 3D technologies, MOOCs, e-learning, m-learning, flipped learning, Internet of Things (IoT), intermediate interval learning, hybrid, mixed reality (MR), Machine Learning (ML), Artificial Intelligence (AI) in a person's professional life.**

One of the key problems of a person's professional activity is the development of a person's digital competence, which is a consequence of combining the virtual and real worlds for visualizations and the creation of new spaces where digital and physical objects interact and coexist in real-time. A modern person should be able to use the latest digital tools in their professional activities, be in the trend of modern technologies, create a suitable environment for their activities, be able to protect personal information in the digital space and know ways and ways of safe behavior on the Internet. Therefore, for a teacher of a higher school, the formation of digital competence in both the future specialist and himself is an urgent need (Stoika, 2022).

The development of personality in modern society is facilitated by cloud technologies, which facilitate the use of video and audio files, and provide free access to informational educational materials. There is a practice of active use of online webinars, integrated practical classes, etc. Cloud technologies provide new opportunities for conducting training, scientific work, collective, group, research, interactive project activities, online communication with colleagues and employers, etc. (Verbovetskyi & Oleksyuk, 2022).

The introduction of digitization of education in the global space is aimed at creating a system of training specialists closely related to IT companies, creating a system that will determine professional standards in a certain field.

The basis of digital education is information, new information that changes the traditional education system and contributes to the formation of its new quality. Training future specialists in various fields only with the help of "dry" classes and banal didactic materials can discourage the desire to work and will be fruitless. Therefore, the training of a modern specialist involves the formation of a digital culture in the teacher, to competently use the opportunities of the information society. The professional thinking of the teacher is formed and develops in the conditions of the information space. The teacher's thinking generates new ideas, understanding the needs of modern education with the use of digital technologies, and understanding the problems in one's own professional activity. The digital environment requires a different way and forms of work from the teacher, a different formulated picture of the world, and a different mentality because digitalization in modern society is a creative product, a means of personal development, gives an impetus to the development of the professional thinking of the future specialist, who is created as a person under his leadership.

To increase the level of implementation of digital technologies by future specialists, to develop professional thinking, developing a digital educational environment, and improving the level of literacy, we propose to implement and develop multimedia and digital learning tools and equipment, including augmented and virtual reality tools, cloud technologies, mixed and distance learning, educational robotics, MOOC, 3D technology training tools.

The task of digital means, in the context of the development of the professional thinking of the future specialist of today, is to activate the process of the working day, and free up time for personal direct communication (Rozputnia et al., 2023).

For this purpose, we recommend using mobile learning, e-learning, "inverted" learning, and blended learning at the workplace.

E-learning at the workplace is: based on the use of new multimedia technologies of the Internet, a promising model for improving the quality of work through joint work at a distance, facilitating access to services and resources, their exchange, a system that offers the use of electronic libraries, Internet technologies, multimedia materials, workshops, virtual laboratories, etc. It would be appropriate to develop a specialist's website for a purposeful, independent search for information.

M-learning – transfer of knowledge using WAP and GPRS technologies to mobile devices to make the professional process accessible, flexible, and personalized, which implements the principle: work at a convenient time and in any place. We offer the use of mobile applications – WhatsApp and Viber, which allow you to send text messages, communicate with colleagues, and make audio and video materials necessary for work.

Flipped learning is a form of cooperation that allows you to actively "flip" the usual work process in such a way that it has a positive effect on the results of work, independent work, and the actualization of already-known knowledge when discussing and performing practical tasks.

If a professional is willing to spend time customizing Minecraft and setting up a script, then the professional potential is endless. You can work in a team by giving such a task, the performance of which requires the combined efforts of the entire team.

The acquisition of practical skills by specialists in working with multimedia means of computer technologies creates a professional basis that allows to establishment of optimal proportions between traditional and computer technologies in human activity. In this way, the combination of traditional and innovative technologies helps eliminate stereotypes in the workplace, creates an interesting aura at work, and ensures a high level of personal productivity.

An important place in the process of improving a person's professional qualities is occupied by intermediate interval work. This technology is effective in programming, linguistics, and other fields, and contributes to the long-term consolidation of the studied material. Success in retaining acquired skills and memorizing knowledge occurs with constant repetition of the material and systematic practical application. Such cyclicity in practice is successfully updated after the development of a mobile application.

Internet of Things (IoT) is one of the main technologies on which digital information is based. The modern system of worldwide digitalization allows for remote management and collection of information on digital objects of the physical world that connect to the Internet (control of industrial or home alarm systems). A virtual copy of a physical object appears on the Internet, allowing the object to be controlled over the Internet and containing various parameters of the outside world and the object. An example of IoT is a preceptor in a cinema, which sends a signal about a detected malfunction to the technical support service and offers a list of spare parts that must be replaced as part of unscheduled repairs.

Immersive technologies, which include Virtual Reality and Augmented Reality technologies, are invaluable in a person's professional life and are actively being implemented in the professional practice of their fields. The principle of immersiveness offers specialist immersion in virtual space. The design of virtual interactive models is relevant now in the professional sphere and the educational space. Virtual reality technology has become an important technology in modern society because it can effectively supplement traditional didactic tools. It attracts users with the possibility of active participation of each person in the process of professional activity, interesting for its interactivity. Virtuality becomes an effective tool for a person's life, because, at the moment of immersion, a person takes an active part in the process, is interested in this process, and works successfully. A product designed by technical means is perceived by a person using visual, auditory, discrete, and kinesthetic channels. To enhance the perception and enrich the knowledge of the research material (AR), sensory information is provided. "Since the brain does not distinguish between real events and a high-quality simulation, there is a high probability that VR and AR technologies will solve the problem of "live" communication in online education. The created "presence effect" contributes to experiencing an incredible experience in real reality (VR)" (Karpluk, 2019).

Technical devices allow a person to be in virtual reality. The appearance of such devices has made this technology in demand in the entertainment industry. Virtual reality suits and helmets, movie theaters, auditoriums, and specialized rooms allow a person to enter an unknown world, which is programmed in such a way that allows one to fully immerse himself in the proposed world and all human actions cause a reaction-response of the virtual world.

Currently, VR technologies are not so often used in business. 3D modeling technologies are in great demand here. To optimize the processes of making management decisions, with the possibility of connecting the means of designing products with the means of their production – within the framework of 3D modeling, it is possible to claim the construction of models of objects, their filling with data (Shumilova et al., 2023).

The result of merging virtual and real worlds is hybrid, mixed reality (MR), which is essential for creating visualizations and new spaces where digital and physical objects interact and coexist in real-time.

Machine Learning (ML) and Artificial Intelligence (AI) are on the rise in modern society. Machine learning, which refers to the methods of artificial intelligence, teaches the computer to find solutions to various problems on its own. With the help of pre-loaded special algorithms and data, computers perform analytical work and identify patterns faster than humans (Morze et al., 2020).

Robotics. Robots are already coming into our reality in all spheres of production, medicine, education, etc. The presence of robots in human life allows to reduce the number of errors created by the human factor, contributes to the substitution of functions performed by people in production, and also accelerates the performance of tasks set by the enterprise. Many industrial companies actively use robotics in logistics, on industrial lines, which allows them to get by with minimal involvement of people and reduce the human factor. In Germany, there is the term "Industry 4.0", which involves the construction of fully automated logistics networks and production networks, where machines interact with each other within the framework of production processes.

An important technology that can change the engineering and construction industries is 3D printing. The creation of a significant number of 3D printers that can print products from metals and even gold, concrete, and polymers changes the very understanding of the production cycle, since, having only a 3D model and a 3D printer, many of the products can be obtained at home. There are examples: a fully 3D-printed bus, a printer that can print itself, entire houses built using specialized 3D printers, and bridge printing in development. Designers of clothes and shoes, and mechanical engineering, who also print their products, have already actively participated in the development of 3D printing. Builders, jewelers, and doctors are increasingly actively using 3D printing in their professional activities.

The so-called synergy of technologies – the joint use of innovative digital technologies, about which scientists from different countries have recently expressed many opinions, is exciting for the whole world. This allows you to restructure a completely relevant industry, bringing to it a product that did not exist before, and not just to change a certain process. The best thing about digital transformation is the possibility of using all the technologies described above.

So, the Internet of Things allows you to form conclusions and decisions; will be able to combine the virtual world with the real world; based on huge arrays of data, and apply artificial intelligence obtained from IoT. Virtual and augmented reality will make the new world richer for people. And 3D printing and robotics will allow most routine operations to be automated. Information systems have entered all spheres of life. The development of digital technologies opens up a huge range of possibilities. Progress in all fields and industry. Personal websites of specialists can be called multi-functional, informative, comprehensive tools, the usability of which helps to find the necessary information and guides the user through numerous pages (Nychkalo et al., 2021).

Today, the combination of robotics, artificial intelligence, the Internet of Things, and 3D printing makes it possible to build fully mechanized productions from the production of products, starting, for example, with sneakers and ending with cars.

Gamification in human life and the application of its elements in pedagogical practice is a trend of the future. Game models and educational games (for example, "Stalkers", "Classcraft", "Alpha Planet", etc.) become a component of a person's professional strategy. Motivation and interest in work and professional training of a person increases, with the help of the implementation of a game approach, the attention of the individual is maintained, and his involvement in quasi-professional activities occurs.

The didactic potential of gamification directly affects a person's life path: both in life and in a professional direction, which provides opportunities to increase a person's digital competence, to update information about new implementations of digital technologies, to be aware of new trends, etc. The introduction of a gamification environment into a person's life contributes to the development of spatial imagination, lifelong learning, and the continuous development of mental skills, encourages work in an innovative modern environment, promotes self-organization, and allows the formation of practical work skills in a group. Gamification develops the professional competence and digital competence of a person, which is a

component of his professional culture as an integrated, complex formation in the integral structure of a specialist (Verbovetskyi & Oleksyuk, 2022).

Digital science art technology is a technology of creative direction of the individual, which arose at the border of science and creativity from the fusion of "numbers" and art. It is possible to preserve cultural values and improve their quality in a digital environment using computer technologies. Objects of decorative and applied art can be modeled using 3D printing. "The works of "scientific art" have a serious research base, based on the achievements of scientists, but also appeal to emotions, allowing both to understand and to feel science" (Kucherak, 2020).

### 3. Principles of digitization.

Let's name the basic principles of digitalization, which are necessary in the process of online work of a person in any field of knowledge:

- The principle of creating advantages in life and professional aspects of a person's everyday life directs digitalization to create advantages;
- The principle of accessibility through the use of information and communication technologies provides every individual with equal access to information knowledge and services, ease of use and access, relevance and constant updating;
- The principle of information society. Digitization contributes to the development of the creative market, creative environment, information society, etc.;
- The principle of efficiency and competitiveness of digitalization contributes (thanks to the increase in productivity and the increase in efficiency from the use of digital technologies) to the mechanism of economic growth of the entire enterprise and the person, in particular. Note that such an increase is possible when the initiative, actions, ideas, and digitalization programs are fully integrated into regional, national, and global development programs and strategies.
- The principle of standardization is the basis of digitalization, a key factor in its successful implementation;
- The principle of integration provides an opportunity for digitalization to focus on global cooperation to develop the global market of electronic services and electronic commerce; integration with global systems, to spread innovative modern technologies;
- The principle of public administration makes digitalization an object of complex and focused public administration, where politicians and public administration play the main role in the implementation, promotion, and development of national comprehensive digital strategies of society;
- The principle of confidentiality, trust and security of digitalization when using ICT is accompanied by increased security and trust (cyber security, information security, inviolability of a person's personal life, trust, confidentiality of personal information, protection of the rights of ICT users) and is a simultaneous prerequisite for security and development of digitalization; facilitates control of operations, protection of personal data, provides the ability to prohibit or limit information, warns of hacks, protects information from distortion or interference and controls its capabilities;
- The principle of expediency –to achieve professional goals and fulfill set tasks during digitization, it is mandatory to use the necessary technologies or digital methods;
- The principle of individualization involves obtaining the necessary information and access to the digital space, improving professional skills and personal skills, creating an individual strategy of professional activity, using communication in social networks, adaptive methods, individual forms of presentation, etc.;
- The principle of flexibility – following the special needs of a person and the age, and individual, interests of each individual allows the use of digital content taking into account the professional tasks of the individual, his preferences, convenient place or time, etc.;
- The principle of development – through digitalization, in solving life problems, the advantages of the digital environment are used, ensuring the realization of personal qualities of a person, the development of creative abilities, the desire to improve, adaptation to modern working and living conditions;
- The principle of innovativeness makes it possible to use the possibilities of the digital space and the latest technologies in it, modern innovative, remote, interactive, methods and forms of work in professional activity (Kremen et al., 2022).

#### 4. In-demand services for self-study and professional activities.

As a result of the analysis of digital educational platforms and their review, digital educational products and the most popular services, as well as free web applications for joint professional work on the Internet, were identified, and a matrix of their services, tools, and capabilities was compiled.

In the conditions of e-learning and self-learning, the integration of MOOCs into a person's life allows for enriching the content of professional activity, introducing the skills of the world's best specialists into the process of self-education, and giving every person free access to knowledge and professional activity.

Massive open online courses (MOOC) for self-study are popular services that offer courses by well-known world-class specialists (Plakhotnik et al., 2023).

For professional activities, we successfully used messengers: Skype, Viber, WhatsApp, etc.; communication services of social networks Facebook, Telegram, etc.; cloud services Google Mail.

We note the efficiency and convenience of the modular dynamic personal-oriented professional environment (Moodle), where all resources are located in a single database; professional process is continuous and mobile, place and time are independent, information resources are available; modern methods of interaction are available: workshops, chats, blogs, forums, wikis, etc.; for professional activities, there is an opportunity to work in the system asynchronously and synchronously; ways and methods of communication in a group of employees deserve attention: sending information, comments, discussions, evaluation, etc.; the ability to manage and monitor the specialist's activities; possibility of evaluation and analysis of activity results.

The formation and development of the digital competence of specialists is important for a specialist in any field, as well as for positive digitalization – the use of independent and corporate micro- and macro-educational professional space formats. Sites in the macro-educational professional space: Coursera, EdX, Udacity, General Assembly, Udemy, BigThink, CrossKnowledge, SkillSoft, Pluralsight, Lynda.com, etc. The micro-educational specialist space was implemented in a short period, while the macro-educational specialist space was of a long-term nature. Sites of micro-educational professional space: Grovo, YouTube, Twitter, Pathgather, Axonify, Edcast, Qstream, etc. (Marienko & Sukhikh, 2022).

So, all of the above speaks of the importance and necessity of introducing digitalization into modern society, which is a necessary condition for its introduction in the educational and professional activities of a person and is a means of increasing motivation, interest, and personality development.

#### 5. Experiment.

The purpose of the experimental work: experimental verification of the formation of the digital competence of specialists and the role of effective digital applications, services, and digital tools in human life.

Research methods. The modern methodology of psychological and pedagogical research was used to conduct an experimental test of the formation of the digital competence of specialists and to analyze the role of effective digital applications, services, and digital tools in human life.

In particular, the following methods were used: analysis of the sources of the literary and bibliographic review; terminological and retrospective analysis, statistical and formal-logical analysis, study of the products of individual activity, questionnaire survey, and monitoring.  
By level of education – adult education.

Time of the experiment: 2023–2024.

Audience of experimental work: specialists in various fields.

We made an approbation and experimental verification of the effectiveness of the formation of digital competence of specialists and the role of effective digital applications, services, and digital tools in human life.

We have developed a system for the formation of digital competence of specialists and developed methodological recommendations for the development of digital competence of specialists.

Control and experimental groups were determined (experimental group (EG) – 131 respondents, control group (CG) – 129 respondents), where constant sections were conducted to determine the levels of development of digital competence of specialists and the role of effective digital applications, services, digital tools in everyday life a person.

The confirmatory experiment showed the following results.

As a result of the ascertainment experiment, it was found that the level of digital competence of specialists in the conditions of the information environment is insufficient.

The formation of the content component of the digital competence of specialists at the beginning of the experiment in EG and CG had practically no difference.

In the experimental group and the control group, according to the content block, the average relative value of the formation of digital competence of specialists was equal to:

- CG – 35.8%;
- EG – 36.2%.

Moreover, the respondents fully agreed with the statement that the invaluable role of digital applications, services, and digital tools is important in the process of formation and development of the digital competence of specialists.

In the experimental group and the control group by organizational block, the average relative value of the formation of digital competence of specialists was equal to:

- CG – 21.7%;
- EG – 23.5%.

In the experimental group and the control group by technological block, the average relative value of the formation of digital competence of specialists was equal to:

- CG – 22.9%;
- EG 22.2%.

Such results indicate the homogeneity (at the beginning of the experiment) of the preparedness of the respondents and the need to develop the digital competence of specialists.

At the formative stage of the experiment, an author's methodology using digital applications, services, and digital tools in human life was introduced in the experimental group to form and develop the digital competence of specialists. The author's technique was not used in the control group.

In particular, the EG respondents were informed about the content, the main goal, and the main directions of digitalization for the improvement of human life, society, and the state. The role of digital competence, virtual and augmented reality tools, cloud technologies, robotics, 3D technologies, MOOC, e-learning, m-learning, flipped learning, Internet of Things (IoT), intermediate interval training, hybrid, mixed reality (MR), Machine Learning, ML, Artificial Intelligence, AI in a person's professional life.

The most effective principles of digitization, popular services for self-study, and professional activities are outlined. As a result of the analysis of digital educational platforms and their review, digital educational products and the most popular services, as well as free web applications for joint professional work on the Internet, were identified, and a matrix of their services, tools, and capabilities was compiled. In the conditions of e-learning and self-learning in practice, the integration of MOOCs into human life is shown, which allows for enriching the content of professional activity, introducing into the process of self-education the skills of the best specialists in the world, giving every person free access to knowledge and

professional activity; used the Massive open online course (MOOC) for self-education, which are popular services that offer courses by well-known world-class specialists.

For professional activities, we successfully used messengers: Skype, Viber, WhatsApp, etc.; communication services of social networks Facebook, Telegram, etc.; cloud services Google, and Mail.

Respondents note the efficiency and convenience of a modular dynamic personal-oriented professional environment (Moodle), where all resources are located in a single database; the professional process is continuous and mobile, place and time are independent, information resources are available; modern methods of interaction are available: workshops, chats, blogs, forums, wikis, etc.; for professional activities, there is an opportunity to work in the system asynchronously and synchronously; ways and methods of communication in a group of employees deserve attention: sending information, comments, discussions, evaluation, etc.; the ability to manage and monitor the specialist's activities; the possibility of evaluation and analysis of activity results.

We used the formats of independent and corporate micro- and macro-educational professional space (according to M. Marienko, & A. Sukhikh (2022)). Sites in the macro-educational professional space: Coursera, EdX, Udacity, General Assembly, Udemy, BigThink, CrossKnowledge, SkillSoft, Pluralsight, Lynda.com, etc. The micro-educational specialist space was implemented in a short period, while the macro-educational specialist space was of a long-term nature. Sites of micro-educational professional space: Grovo, YouTube, Twitter, Pathgather, Axonify, Edcast, Qstream, etc.

All of the above speaks of the importance and necessity of introducing digitalization into modern society, which is a necessary condition in the educational process and professional activity of a person, is a means of increasing motivation, interest, personality development, and the formation of digital competence in a specialist.

At the formative stage of the experiment, 131 respondents of the experimental group were involved (specialists in socioeconomic specialties, physical and mathematical specialists, managers, directors, and deputies of companies), who directly carried out digitalization measures in their professional activities.

In the control group, informational materials and methodological recommendations were provided for self-examination regarding the development of digital competence of specialists and the role of effective digital applications, services, and digital tools in human life.

Positive dynamics were obtained at the end of the experimental work in both groups – in the experimental group and the control group. However, in the experimental group that underwent training, a significantly higher level of development of the digital competence of specialists and the respondents' use of effective digital applications, services, and digital tools in their professional activities was noted.

This is evidenced by the results at the end of the formative experiment.

In the experimental group and the control group, according to the content block, the average relative value of the formation of digital competence of specialists was equal to:

- CG – 57.8%;
- EG – 97.4%.

Moreover, EG respondents used digital applications, services, and digital tools constantly in the process of forming and developing digital competence, while CG respondents did it sporadically.

In the experimental group and the control group by organizational block, the average relative value of the formation of digital competence of specialists was equal to:

- CG – 38.5%;
- EG – 87.3%.

In the experimental group and the control group by technological block, the average relative value of the formation of digital competence of specialists was equal to:

- CG – 49.9%;
- EG 83.7%.

Such results indicate the need for the formation and consistent development of digital competence of specialists.

The qualitative analysis of the effectiveness of the development of the digital competence of specialists was confirmed by the quantitative analysis of positive changes in all blocks.

We provide methodological recommendations for the development of the digital competence of specialists and the optimal practical use of digital technologies in a person's professional activity:

- constantly increase the digital competence of specialists;
- in professional activity and human life, use tools of virtual and augmented reality, cloud technologies, robotics, 3D technologies, MOOC, e-learning, m-learning, flipped learning, Internet of Things (IoT), intermediate interval training, hybrid, mixed reality (MR), Machine Learning, ML, Artificial Intelligence, AI;
- to develop digital tools that contribute to the individualization of personality at the workplace;
- use effective digital applications, services, and digital tools in daily life and professional activities;
- use digital technologies in everyday life and professional activities for cooperation, interaction, providing feedback on professional results, increasing motivation, interest in work, personal development, and formation of digital competence in a specialist;
- to ensure the availability of digital applications, services, digital tools, and digital technologies for all employees in the professional space, in everyday life, and especially for those with special needs, and limited physical capabilities.
- to implement projects that involve the use of services, effective digital applications, digital technologies, and digital tools in a person's professional activity and life.

## Conclusions

The content, the main goal, and the main directions of digitalization for improving the life of a person, society, and the state have been formed.

The role of digital competence, virtual and augmented reality tools, cloud technologies, robotics, 3D technologies, MOOC, e-learning, m-learning, flipped learning, Internet of Things (IoT), intermediate interval training, hybrid, mixed reality (MR), Machine Learning (ML), Artificial Intelligence (AI) in a person's professional life.

The most effective principles of digitization, popular services for self-study, and professional activities are outlined.

As a result of the analysis of digital educational platforms and their review, digital educational products and the most popular services, as well as free web applications for joint professional work on the Internet, were identified, and a matrix of their services, tools, and capabilities was compiled.

In the conditions of e-learning and self-learning in practice, the integration of MOOCs into human life is shown, which allows for enriching the content of professional activity, introducing into the process of self-education the skills of the best specialists in the world, giving every person free access to knowledge and professional activity; used the Massive open online course (MOOC) for self-education, which are popular services that offer courses by well-known world-class specialists.

Messengers were successfully used for professional activities: Skype, Viber, WhatsApp, etc.; communication services of social networks Facebook, Telegram, etc.; cloud services Google, and Mail.

We used the formats of independent and corporate micro- and macro-educational professional space.

To form and develop the digital competence of specialists, the author's methodology was developed and introduced to the experimental group using digital applications, services, and digital tools in human life. The author's technique was not used in the control group.

The results obtained during the experimental study indicate the need for the formation and consistent development of the digital competence of specialists.

The qualitative analysis of the effectiveness of the development of the digital competence of specialists was confirmed by the quantitative analysis of positive changes in all blocks.

Methodological recommendations have been developed for the development of the digital competence of specialists and the optimal practical use of digital technologies in a person's professional activity.

Further research is needed to investigate the role of digitalization principles in the self-learning of a person during his life.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.9>

How to Cite:

Derviş, L. (2024). Analysis of the dynamics of the modern Russian-Ukrainian war: historical roots of geopolitical ambitions. *Amazonia Investiga*, 13(77), 123-134. <https://doi.org/10.34069/AI/2024.77.05.9>

## Analysis of the dynamics of the modern Russian-Ukrainian war: historical roots of geopolitical ambitions

### Modern Rusya-Ukrayna Savaşının Dinamiklerinin Analizi: Jeopolitik Hırsların Tarihsel Kökleri

Received: April 21, 2024

Accepted: May 26, 2024

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#### Abstract

Given the protracted Russian-Ukrainian war, an urgent task is to highlight the preconditions and historical roots of this confrontation. Therefore, the paper aims to highlight the historical basis of Russian-Ukrainian war. The methodology for the paper involves a multi-faceted approach combining historical analysis, geopolitical examination, and comparative studies. The systematic method and content analysis of the literature were used to implement the research objective. In results parallels are drawn between historical tactics and recent events, suggesting continuity in strategies during the Russian annexation of Crimea and the 2014 war. The ongoing war between Ukraine and Russia is not merely a territorial dispute; it represents a complex interplay of historical grievances and geopolitical ambitions. By uncovering historical antecedents, the work contributes to fostering dialogue between involved parties and external actors. In the history of Ukraine, the geopolitical aspirations of the Russian authorities have manifested themselves with such intensity that they have extended to the introduction of language restrictions. Understanding the historical context is crucial for developing strategies aimed at peaceful conflict resolution. These historical narratives highlight the enduring tensions and consequences of geopolitical forces in shaping Ukraine's trajectory. In conclusion, the paper offers insights into enduring geopolitical ambitions shaping the contemporary conflict in the region.

**Keywords:** historical roots, political ambitions, international relations, Russian politics, Russian-Ukrainian war.

#### Özet

Uzun süredir devam eden Rusya-Ukrayna savaşı göz önüne alındığında, bu çatışmanın ön koşullarını ve tarihsel köklerini vurgulamak acil bir görevdir. Bu nedenle, bu çalışma Rusya-Ukrayna savaşının tarihsel temellerini vurgulamayı amaçlamaktadır. Çalışmanın metodolojisi, tarihsel analiz, jeopolitik inceleme ve karşılaştırmalı çalışmaları birleştiren çok yönlü bir yaklaşımı içermektedir. Araştırma amacını gerçekleştirmek için sistematik yöntem ve literatürün içerik analizi kullanılmıştır. Sonuçlar, tarihsel taktikler ile yakın zamandaki olaylar arasında paralellikler kurarak Rusya'nın Kırım'ı ilhakı ve 2014 savaşı sırasındaki stratejilerde süreklilik olduğunu ortaya koymaktadır. Ukrayna ve Rusya arasında devam eden savaş, komşu ülkelerin tarihine damgasını vuran olağan toprak anlaşmazlıklarının ötesine geçmektedir. Bu çalışma, tarihsel öncülleri ortaya çıkararak, ilgili taraflar ve dış aktörler arasında diyalogun geliştirilmesine katkıda bulunuyor. Ukrayna tarihinde, Rus yetkililerin jeopolitik istekleri, dil kısıtlamalarının getirilmesine kadar uzanan bir yoğunlukta kendini göstermiştir. Tarihsel bağlamın anlaşılması, çatışmaların barışçıl yollarla çözümüne yönelik stratejilerin geliştirilmesi açısından büyük önem taşımaktadır. Bu tarihsel anlatılar, Ukrayna'nın yörüngesini şekillendiren jeopolitik güçlerin kalıcı gerilimlerini ve sonuçlarını vurgulamaktadır. Sonuç olarak bu makale, bölgedeki güncel çatışmayı şekillendiren kalıcı jeopolitik emellere dair içgörüler sunmaktadır.

**Anahtar Kelimeler:** Tarihsel kökenler, siyasi hırslar, uluslararası ilişkiler, Rus siyaseti, Rusya-Ukrayna savaşı.

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## Introduction

### Research problem

The ongoing war between Russia and Ukraine is not merely a contemporary geopolitical struggle; it is a complex narrative woven with historical threads that extend deep into the annals of time. Amidst the modern dynamics of this war, a peculiar dimension surfaces – Russia's deliberate ascription of certain narratives from Ukrainian history, particularly those rooted in the ancient past. This strategic incorporation of historical narratives adds a layer of complexity to the conflict, highlighting the interplay between history, geopolitics, and national identity. Therefore, the modern Russian-Ukrainian war is not merely a clash of military forces on the battlefield; it is a manifestation of historical grievances, territorial disputes, and competing geopolitical ambitions. The relevance of analyzing this conflict extends far beyond its regional impact, as it holds the potential to reshape the geopolitical landscape and influence international relations. This ongoing war has prompted an increased scholarly focus on analyzing its multifaceted dimensions, seeking to provide insights into the evolving dynamics and contributing factors. In particular, the modern research a novel conceptual trajectory within the realm of war studies, seeking to carve out a distinctive niche in international studies terminology without negating the established meaning of an existing term – proxy war (Kappeler, 2014; Derviş, 2023). It is essential to note that errand war does not vie for precedence with proxy war; rather, it emerges as a derivative construct stemming from a leader's message, artfully framed and presented with an air of arrogant self-importance to the political leadership of an assumed 'subservient' state. Proxy war, in this context, retains its intrinsic definition. The paper by Dapo (2023) introduces an array of glittering elements drawn from warfare and strategic studies, incorporating aspects such as propaganda psychology, tactical mobilization, collective strategization, the politicization of intelligence, and the syndication of multilateral armament.

### Research focus

In view of numerous studies of the current events of the Russian-Ukrainian war, it is important to characterize the main reasons and historical roots of the confrontation between Russians and Ukrainians. Therefore, there are not many works in historiography that would be devoted to the prerequisites and origins of this war. This research will try to solve this problem. Hence, the main focus of this study will be directed to the analysis of the main origins of this confrontation through the prism of history and political science.

### Research aim and research questions

Therefore, *the purpose of this article* is to examine in detail the historical origins of the Russian-Ukrainian war through the prism of the scrupulous historical relations of these states. Accordingly, the main tasks of the article include:

1. Study of historical relations between Russia and Ukraine
2. Analysis of Russia's policy towards Ukrainian lands
3. Tracing the origins of the geopolitical ambitions of Russia and Ukraine through the centuries against the background of military confrontation.

Hence, the specific, measurable objectives of this analysis are to:

1. Identify the historical events that have shaped the geopolitical landscape between Russia and Ukraine.
2. Describe the historical relations between Russia and Ukraine
3. Examine the strategic objectives and motivations of the involved parties, particularly Russia's ambitions and Ukraine's responses.

By achieving these objectives, this research will provide a understanding of the ongoing war and its broader implications for global stability.

The structure of this article is organized as follows: The first section will explore the historical significance of Kyivan Rus and how it has been used to justify contemporary Russian claims over Ukraine. The second section, will examine the imperial policies and ideological constructs of the Romanov dynasty that have influenced Russia's longstanding ambitions toward Ukraine. The third section, “Soviet and modern Russian

stereotypes about Ukraine as a basis for the Russian-Ukrainian war”, will analyze the stereotypes and perceptions propagated during the Soviet era. The fourth section, “The global response to the Russian-Ukrainian war”, will assess the international community's reactions, including diplomatic efforts, and military support, and their impact on the war.

### Literature Review

Given the escalation of the Russo-Ukrainian war since 2022, contemporary scholars have endeavored to comprehend various aspects of its progression. According to Bila and Hrytsenko (2022) the Russian Federation had set in motion its hybrid war against Ukraine long before 2014, with its roots tracing back to the 1990s. The implementation of the hybrid warfare plan began actively as early as August 14, 2013, when Russia systematically and massively discriminated against Ukrainian exports to the Russian Federation, causing economic damage. The objective was to prevent the signing of the Association Agreement with the European Union (EU) and pull Ukraine into the Customs Union (Bila & Hrytsenko, 2022).

In current literature it was noted that, Russia's geopolitical ambitions towards Ukraine have deep historical roots and are shaped by a combination of factors. Understanding these ambitions requires studying historical, cultural, economic, and strategic considerations. The intricate of Russo-Ukrainian relations is woven with historical events, cultural complexities, economic interests, and strategic imperatives that have evolved over centuries. 1. *Strategic Importance*: Ukraine holds significant strategic importance for Russia. The country serves as a buffer zone between Russia and the European Union and NATO. Russia has historically sought to maintain influence in Ukraine to prevent its alignment with Western institutions, viewing such alignment as a threat to its own security (Knott, 2017). 2. *Economic Interests*: Economic considerations play a role in Russia's ambitions. Ukraine has valuable natural resources, including fertile agricultural land and access to the Black Sea. Controlling these resources has economic implications for Russia, influencing its agricultural and energy sectors. 3. *Geostrategic Positioning*: Russia views Ukraine as part of its historical sphere of influence and an essential component of its broader geopolitical strategy (Todorov, 2015). A Ukraine aligned with the West is seen as diminishing Russia's regional dominance and challenging its aspirations for a sphere of influence in the post-Soviet space. Cultural studies also characterize the role of relations between Russia and Ukraine and their impact on the mentality of the Ukrainian population.

At the same time, the paper by Latysh (2023) focuses on the securitization of historical memory in the context of the Russian-Ukrainian war. This scholar explored how historical narratives are utilized as tools for securitization during the conflict. The work contributes to a nuanced understanding of the war's impact on historical narratives and memory, shedding light on the broader implications for security. Attempts to revise the Soviet-Russian narrative were inevitably perceived in the Kremlin as “encroachments on Russia's sovereignty and intentions to strip it of the title of a victorious state” (Latysh, 2023, p. 182). Similarly, painful were the claims of East Slavic nations to the heritage of Kyivan Rus, as well as attempts to separate national historical narratives from the overarching imperial or pan-Soviet narrative (Kuzio, 2022). These works are important for understanding the complex relationship between Russia and Ukraine. Thus, a dilemma of mnemonic security emerged in Russian-Ukrainian relations – a historical narrative used to legitimize the Ukrainian state and unite the people was systematically denied by Russia. The collective of authors led by B. Lawson has depicted the humanitarian aspects of the Russian-Ukrainian war, with a particular focus on the utilization and interpretation of numbers in the humanitarian context (Lawson, Glasman & Mützelburg, 2023). The collaborative work headed by Lehkodukh et al. (2023) delved into various historical roots and civilizational factors contributing to the Russian-Ukrainian war during the period of 2014-2022. These authors described the complex historical and cultural aspects that could have influenced the course of the conflict. Importantly, their work provides a historical context for the war, offering a deeper understanding of long-term factors that may have fueled the tensions. Derviş (2023) described social and political circumstances of Russian-Ukrainian war. This research is important in terms of the geopolitical component and is of high value for this study, particularly in the context of Ukraine-Russia relations and their impact on geopolitical alignments.

Furthermore, the insights gained from these comprehensive analyses pave the way for a nuanced exploration of the intricate dynamics between Russia and Ukraine during the specified timeframe. By delving into the complexities of nationalism, historical narratives, humanitarian considerations, civilizational influences, and global repercussions, these works offer a holistic framework for examining

the multifaceted nature of the conflict. As this study seeks to delve deeper into the historical and geopolitical dimensions of the Russian-Ukrainian war, it draws upon the methodological groundwork laid by the aforementioned works to provide a thorough and well-informed analysis.

### Methodology

The methodological foundation of scientific intelligence primarily rests on the broader scientific-historical cluster. Employing these methods, the aim is to organize and structure the geopolitical aspect of the Russian-Ukrainian war. That is, the research is based on a qualitative approach, this approach is the most appropriate for the coverage of this topic, since only the analysis of available materials and scientific literature can trace the complex relations between Ukraine and Russia. The selection of the scientific and historical cluster as a research design for studying the geopolitical aspects of the Russian-Ukrainian war is due to the complexity and historical depth of the topic. This design allows for the structural organisation of historical and global data, which will promote a comprehensive understanding of the roots of the conflict and its evolution. The qualitative approach is particularly appropriate as it prioritises in-depth analysis of historical narratives, cultural shifts and geopolitical strategies that are important for understanding the multifaceted nature of Russian-Ukrainian affairs.

The methodology for the paper involves a multi-faceted approach combining historical analysis, geopolitical examination, and comparative studies. The research draws on primary and secondary sources to construct a comprehensive historical narrative of the Russian-Ukrainian conflict. Scholarly articles and analytic studies formed the basis for understanding the evolution of geopolitical ambitions and historical roots.

### Data collection

The selection of sources was based on the following criteria:

1. The work describes the course of the Russian-Ukrainian war.
2. The study outlines the causes of the war.
3. The work describes the complex relations between Russia and Ukraine since ancient times.
4. The history of these countries is described in the study.

The historical analysis employs a chronological framework to trace linguistic restrictions, Russification policies, and cultural assimilation during the Russian Empire. Hence, the historical analysis spans from the era of the Russian Empire to the present, focusing on key periods of linguistic and cultural policy enforcement. The examination extends to the strategic implications of industrial development, focusing on the importation of Russian-speaking workers and the subsequent displacement of the Ukrainian language.

Comparative studies are employed to draw parallels between historical events and contemporary developments. This includes analyzing past Soviet tactics during annexations and conflicts, such as Crimea, and drawing connections to similar strategies observed in the initiation of the 2014 Russian-Ukrainian war. The methodology also incorporates a diplomatic perspective, studying the challenges faced by the Ukrainian Central Rada during World War I and the consequences of perceived collaboration with the Bolshevik government.

### Results and Discussion

Kyivan Rus as the “cradle of three fraternal nations”: the medieval origins of modern Russian aspirations.

The geopolitical ambitions of Russia towards Ukraine have deep historical roots and are shaped by a combination of factors. Understanding these ambitions requires examining historical, cultural, economic, and strategic considerations. Russia and Ukraine share a long and intertwined history, with Kyivan Rus serving as a common historical precursor. This sentiment is echoed by Zalizniak (2016) who emphasizes the profound influence of Asian despotism on the traditional culture and mentality of the Russian people, distinct from their Ukrainian counterparts. While the Ukrainian people are characterized as a Western people with a rich blend of southern and eastern influences, the Great Russian people, despite Europeanization, remain entrenched in Eastern spirit and culture. The clash of mentalities is underscored by the Russian populace’s resistance to European values, as demonstrated through their hostility towards

Ukrainians, who consistently manifest Eurocentric priorities, notably during the Maidans of 2004 and 2014 (Tolstov, 2022). In essence, the historical narratives intertwining Ukrainian and Russian identities not only shape the contemporary conflict but also lay bare the deep-seated cultural and ideological chasm that defines this complex geopolitical struggle (Zalizniak, 2016). The assertion regarding the primordial Eurasian identity of Ukrainians, as propagated by Russian geopoliticians, is far from unequivocal and encounters significant contradictions when subjected to an impartial historical analysis. Rather than a simplistic Eurasian origin, a nuanced examination reveals the ancient and organic ties that connect Ukraine with Europe (Kappeler, 2014). These ties find their roots in the Greco-Roman influences that permeated the Ukrainian territory, a legacy initiated during the Greek era's colonization of the Northern Black Sea in the 7th century. Kyivan Rus emerged along a vital trade route connecting the Baltic to the Mediterranean, representing the eastern segment of the pan-European trade network. Within the ancient Ukrainian territory, European silver coins coexisted with dinars, offering compelling evidence of prevailing trade and economic links oriented towards the west (Zalizniak, 2016). Dynastic marriages of Kyiv princes further underscored the political connections towards the west. The adoption of pan-European Christianity served as a spiritual conduit, assimilating Kyivan Rus into the broader European spiritual community. Contrary to the emphasis placed by Eurasianists on profound confessional differences between Rus and the West, the Christian identity of Kyivan Rus during the era of St. Volodymyr was not Orthodox in the modern sense.

The introduction of Asian methods of production and a despotic state system to Rus in the 13th century originated from China through Mongol influence. The Golden Horde variant of Eastern despotism was actively propagated in Russia, fueled by the influential figure in Russian history, Alexander Nevsky. It is crucial to recognize that the historical narrative of Ukraine's ties with Europe is multifaceted, shaped by diverse influences, and transcends the simplistic notion of a primordial Eurasian identity claimed by some Russian geopoliticians. In the historical narrative, the significance of Alexander Nevsky's victories over the Swedish and German knights in 1240 and 1242 extends beyond mere military triumphs. These victories are argued to have defended the right of North-Eastern Russia to pursue an Asian path of development (Zalizniak, 2016), as asserted by historical sources. A crucial turning point in this trajectory is marked by the initiation of the 300-year Tatar slavery in North-Eastern Russia. In the aftermath of these events, Alexander Nevsky is credited with making a fateful choice that favored the East over the West. The successes of Ukrainian princes were also interpreted in a similar way. For example, in the 1230s, Prince Danylo (known in historiography as Prince of Galicia and Volhynia, or Danylo Romanovych, King of Rus from 1253) defeated the German knights near Dorogochyn. In the textbooks of the times of the USSR, this battle was presented as an element of the anti-German activities of this ruler, which seemed to relate him to Prince Alexander Nevsky. However, this myth about Prince Danylo has been revised: it was about a relatively minor skirmish that was not intended to destroy his alliance with the Teutonic Order. Due to such a policy, textbooks formed a false idea of the history of medieval Ukraine, whose interests were made dependent on the interests of Moscow. The subsequent phase in the evolution of Asian despotism is intricately linked to the figure of Ivan Kalita (1325–1340). Leading a formidable 50,000-strong Tatar army, Kalita gained notoriety for orchestrating bloody pogroms against rebels in Tver, Torzhka, and Kashin. Simultaneously, he assumed a pivotal role in the administration of the Golden Horde along the Upper Volga. Kalita's loyalty to the Khan, demonstrated through the suppression of anti-Tatar rebellions and effective tax collection, earned him the right to incorporate neighboring Moscow principalities into his domain. It was under the patronage of the Tatars that Moscow began the strategic process of "collecting" the cavalry and Rus' lands, establishing a symbiotic relationship with the Golden Horde.

### **Moscow's imperial ambitions for possession of Ukraine: historical and ideological constructions of the Romanov dynasty**

Later, the process intensified during the Romanov dynasty, which from the 17th century, began to annex Ukrainian lands. The Pereyaslav Council of 1654 and Hetman Bohdan Khmelnytskyi's decision regarding Moscow's tsarist suzerainty over the Cossack lands led to the fact that the autonomy of Ukrainian lands was reduced with each subsequent treaty between the Cossack hetmans and the Moscow side. Since then, in the imagination of many Russian ideologues, Ukraine has become an integral part of Muscovy. However, only in 1783, by order of Empress Catherine II, the autonomy of the Hetmanate was abolished, which meant the actual annexation of Ukrainian lands. Until that time, Ukrainian hetmans managed Ukrainian lands relatively independently. Their diplomatic activity was active: Hetman Ivan Vyhovsky returned to the union with the Polish-Lithuanian Commonwealth, hetman Dmytro Doroshenko united the scattered possessions under the sovereignty of the Ottoman Empire, hetman Ivan Mazepa became close to the Swedish king

Charles XII during the Northern War. As the vectors of their activities show, they sought political alliances with European states and powerful Turkey (Plokhy, 2018). The Russian policy of collecting “Rus’ heritage” continued after the division of the Polish-Lithuanian Commonwealth in 1772, 1793, and 1795. The name of Ukraine in official usage was replaced by Malorossiia. The southern Ukrainian lands and Crimea captured from the Crimean Khanate (a vassal of the Ottoman Empire) were called Novorossia and the Tavia Region. In the right-wing (imperial) discourse of modern Russian elites, they still appeal to this fact to emphasize the special status of these lands, considering them separate parts of Russia (Kappeler, 2014). The annexation of Crimea in 2014 and the deployment of Russian troops in Eastern Ukraine were partly explained by these historical contexts. In recent statements, the Russian president explained his ambitions to conquer the modern south of Ukraine by the fact that the Sea of Azov has long been the “internal sea” of the Russian Empire (Sirko, 2022). This maritime perspective not only invokes historical claims but also aligns with broader geopolitical strategies, echoing past aspirations seen in the historical evolution of Russian governance. The Sea of Azov, considered by the Russian leadership as an integral part of its historical sphere of influence, adds a maritime dimension to contemporary geopolitical dynamics, shaping the motivations behind the actions in Crimea and Eastern Ukraine.

The geopolitical aspirations of the Russian authorities were manifested with such intensity that they extended to the imposition of linguistic restrictions, including the prohibition of the Ukrainian language in printed materials, official communication, and various spheres. It is noteworthy that the policy of Russification, initially instigated by the Romanovs, persisted even beyond the collapse of the Russian Empire. The imperial administration, in its pursuit of Russification, laid the groundwork for the cultural and linguistic assimilation of urban centers in Ukraine. The other instrument of Russification was Russian Orthodox Church (Hovorun, 2023)<sup>2</sup>.

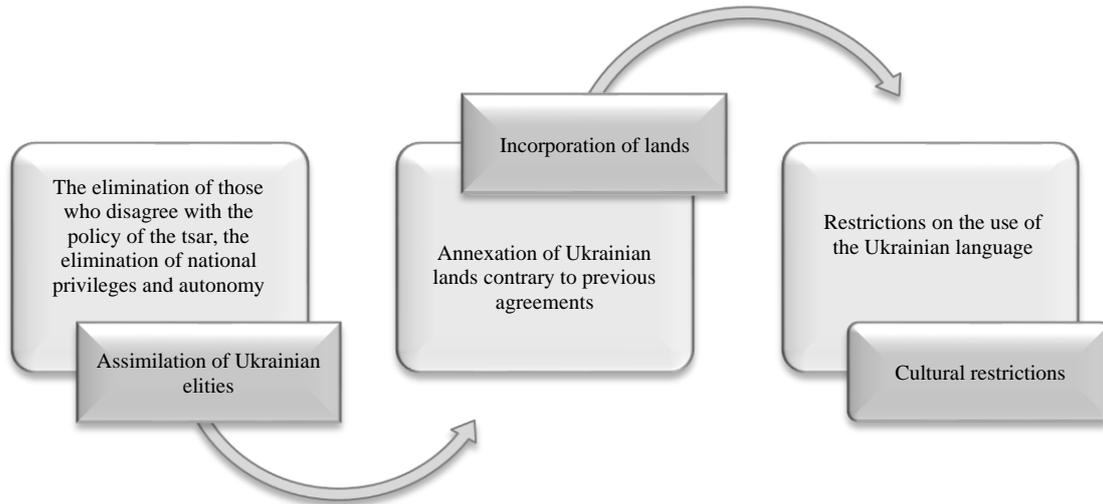
The imperative for industrial development necessitated an influx of labor, leading to the importation of workers from Russian territories. Consequently, the gradual displacement of the Ukrainian language from urban domains transpired. While scholarly assessments may be deemed as potentially hyperbolic, the prioritization of Russian-speaking workers within the enterprises situated in the central and eastern regions of Ukraine became an integral component of the Russian imperial discourse.

The demise of the Romanov dynasty ushered in only a brief resurgence of statehood for Ukraine. In 1917, the Ukrainian Central Rada in Kyiv emerged as the principal representative body for the Ukrainian population formerly under the Russian Empire. Over time, the nascent Ukrainian government sought alignment with the German Empire, a diplomatic move that proved disadvantageous in the context of the ongoing First World War (Plokhy, 2018). The Entente nations perceived Ukrainian officials as collaborators who, in collaboration with the Bolshevik government, entered into a separate peace agreement in 1918 at Brest. This political impasse significantly hindered the diplomatic prospects of the revitalized Ukrainian state.

Therefore, the ambitions of the Russian authorities regarding Ukrainian lands were based on the principles of assimilation of local elites, incorporation of lands and cultural restrictions for the development of Ukrainian life (See Figure 1).

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<sup>2</sup> The policy of glorifying Russian heroes, conducting sermons and prayers exclusively in Russian has also had a significant impact on Ukrainian society, some of whom are members of the Ukrainian Orthodox Church of the Moscow Patriarchate, a kind of “branch” of Russian Orthodoxy in Ukraine. Narratives and theses about the peace that must be maintained during the Russian aggression have become the subject of debate at the level of the Ukrainian legislature and may lead to a ban on the activities of Russian and pro-Russian activists in Ukraine.



**Figure 1.** A model of Romanov politics in relation to Ukrainian lands.  
*Source: author's development.*

The fall of the Russian Empire did not lead to the national liberation of Ukraine, which was part of the Soviet Union. In many aspects, the Bolsheviks acted as the continuation of the Romanov policies. First and foremost, it was about foreign policy, but while the Romanov Empire sought to establish control over the Black Sea straits and capture Istanbul (Constantinople) (Plokhly, 2018), the Bolsheviks' goal was to support the world revolution, which quickly grew into a tendency to understand Moscow not as the “Third Rome” but as the capital of the communist international. Although these regimes were not too similar in appearance, they relied primarily on force to achieve their foreign policy goals.

### Soviet and modern Russian stereotypes about Ukraine as a basis for the Russian-Ukrainian war

The deconstruction of Ukrainian consciousness during the time of the Russian Empire became a strong basis for the establishment of Soviet power. Flirting with communist ideology led to the erosion of the national foundations of the revived Ukraine: issues of socialist development became more important for the political elites of that time than state security. For this reason, the offensive of the Red Army on Kyiv and other cities was quite successful, since the supporters of the independent development of Ukraine could not organize a reliable military defense (Kyrydon & Troyan, 2022). The Bolsheviks acted by making broad promises that they did not intend to fulfill (for example, the transfer of land to peasants in their ownership). They also formed a puppet pro-Soviet government in Kharkiv - formally, it was he who fought with Ukrainian forces, inviting the Russian Red Army to join them. Similar steps can be seen during the unfolding of the Russian annexation of Crimea and the beginning of the Russian-Ukrainian war in 2014. There is talk of promises of broad material benefits and economic prosperity for the pro-Russian residents of Crimea, the creation of separate paramilitary formations in the East of Ukraine, which have declared themselves independent republics (Khomyakov, 2020). Copying old Soviet “projects” made it possible to divert suspicion from the Russian authorities before the start of an open invasion in 2022.

The Soviet authorities reacted to the "Ukrainian question" much more acutely. Suspicion of “Ukrainian nationalism” became a terrible accusation, for which they could be sentenced to death or long imprisonment in the camps. Many books (especially historical ones) were banned; the history of Ukraine was reduced to a constant desire to “unite” with Russia. Russification intensified, as the Ukrainian language began to be pushed out of official use since the 1930s. In addition, the terrible Holodomor of 1932–1933 led to huge human losses among the Ukrainian peasantry. Instead, immigrants from Russian territories began to be brought to Ukrainian towns and villages. Especially many such immigrants ended up in the Crimea and in the East of Ukraine, in the large industrial centers of the central regions. Even in the western Ukrainian lands, after their accession to the Ukrainian SSR, leadership roles belonged to people who did not come from the local communist elites. Fear of Ukrainian “nationalism” led to the fact that only verified personnel with verified biographies were admitted to the administration.

The developed economic system connected Ukrainian enterprises with Russian ones. This combination contributed to the assimilation of the Ukrainian economy and made its development impossible without Russian markets. Even after the collapse of the USSR in 1991, these ties enabled the Russian political elite to talk about Ukraine as a failed state that is unable to develop independently. Similar views were instilled in Russian society through propaganda and actualization of established stereotypes. First of all, it is said that the largest industrial centres of Ukraine were subjected to severe Russification, which pushed Ukrainian out of communication and replaced it with Russian. The belief that Ukrainian was a rural language began to take hold, while in the cities, which embodied Soviet progress, (Plokhly, 2018) it was customary to speak Russian. This vision of the linguistic picture of the world persisted even after 1991 and was partly fuelled by pro-Russian political and civic organisations.

The current shape of Russian society is largely molded by the tumultuous transformations of the 1990s, marked by widespread neoliberal atomization through consumerism and profound depoliticization. This environment naturally provided fertile ground for the state's "post-truth" propaganda (Datsiuk et al., 2023). Together, these factors have given rise to an exceptionally cynical society, now incapable of meaningful political engagement. The collapse of the Soviet Union instilled a general skepticism toward any ideology and, in fact, any morality-driven politics.

In the political landscape of 1990s Russia, two prominent movements were discernible. One was led by the so-called "people of the sixties," motivated by anti-Stalinist and anti-dictatorship sentiments, supporting value politics grounded in demanding moral principles. The other movement, however, represented a more 'realist,' extremely cynical, semi-criminal, and highly securitized understanding of communal life. The former was exemplified by the towering figure of academician Andrey Sakharov, while the latter found representation in various former KGB officers.

By this point, Russian society had become accustomed to leading a dual life-paying lip service to communist ideals expressed in the grandiloquent "moral codex of the builder of communism," while privately embracing values of consumerism and a pursuit of material prosperity. The shared experience taught late Soviet citizens that morality was ultimately a tool of manipulation serving the interests of the ruling group. Consequently, the swift collapse of communist ideology resulted in the establishment of an exceedingly cynical and amoral society. It's not that the society completely lost its ability to discern morally right and wrong actions; it simply ceased to care. Naturally, truth itself perished alongside morality (Khomyakov, 2023). As a consequence, Sakharov's noble cause met an inevitable demise. Putin's administration has actively worked to cultivate this mindset (Todorov, 2015). Despite the assertions of various contemporary commentators, regarding the supposed essentialist understanding of the Russian nation, a novel self-perception has emerged, shaped primarily by a profoundly neoliberal approach to governance.

### **The global response to the Russian-Ukrainian war**

According to structural realists, the conflict is seen as a preventive war, strategically motivated by NATO's eastward expansion. However, many scholars argue that Putin's decision-making is characterized by irrationalities that are better understood as overbalancing and hubris in classical realism. Putin's overbalancing can be explained by applying the concept of self-deception from evolutionary psychology, providing a scientific basis for hubris in classical realism (Ito, 2023). The global reaction to the Russian-Ukrainian conflict has caused sharp condemnations and caused indignation in many countries of the world. Russia has become an object of international condemnation for violation of Ukraine's sovereignty and international law. Attempts to resolve the conflict include a wide range of sanctions and restrictions on pressure on the Russian regime (Mustafazadeh, 2022). The international community actively expresses indignation and demands that aggression from Russia. War and deployment of Russian troops in the territory of Ukraine are condemned. The countries have introduced various economic, political and diplomatic sanctions aimed at restoring the territorial integrity and sovereignty of Ukraine.

Germany has emerged as a significant player in the global response to the Russian-Ukrainian conflict. The German government has taken a firm stance against Russia's actions, emphasizing the importance of upholding international law and condemning the violation of Ukraine's sovereignty. Germany has actively participated in diplomatic efforts and has contributed to shaping the collective European response to the crisis. The country's economic influence and diplomatic weight add a crucial dimension to the international community's efforts to address the conflict. Meanwhile, the United States has been a vocal critic of Russia's

aggression in Ukraine. The U.S. government has swiftly condemned the violation of Ukraine's sovereignty, labeling it as a threat to regional stability. The United States has played a pivotal role in coordinating responses within the NATO framework, emphasizing the alliance's commitment to collective defense. The imposition of targeted sanctions by the U.S. underscores its determination to hold Russia accountable for its actions. Although the war is still far from being resolved and hostilities ceased, the search for historical foundations makes it clear how sudden relapses of the imperial past can be even in the twenty-first century. On this basis, it can be determined that claims need to be grounded before they can be realised. One of the most promising ways to abandon violence is to reject the imperial notion of history, where reality is measured by colonial possessions or a single "world".

## Discussion

The obtained results indicate that throughout the centuries, Russia sought to subjugate Ukrainian lands using a diverse arsenal: military, ideological, and coercive-cultural. In particular, the data reveals a centuries-long coercive Russification of the Ukrainian population and the influx of large masses of ethnic Russians, primarily for employment in urban enterprises. It is shown, that the intense geopolitical aspirations of Russian authorities, exemplified by linguistic restrictions and the prohibition of the Ukrainian language, continuing the policy of Russification initiated by the Romanovs. This extended beyond the collapse of the Russian Empire, with a focus on assimilating urban centers in Ukraine (Dolzhenko, 2022). The imperative for industrial development led to the importation of Russian-speaking workers, contributing to the displacement of the Ukrainian language in central and eastern Ukrainian regions. This linguistic shift became integral to the Russian imperial discourse. This result is proven by Ploky (2018), who emphasized the importance of the industrial development of Ukrainian cities for the Russification of the local population. Other aspects of this problem are also proved by Zalizniak (2016) and Kögler (2023).

Mentioning Russia's geopolitical ambitions and Ukraine, it is very crucial to mention how current Russian administration considers "the ethnic Russians", which formed base for the annexation of Crimea and the start for the Russia-Ukraine War. From the other hand, there are other points of view. For example, Dunford (2023) wrote, that the military conflict involving Russia, Ukraine, the United States, and NATO is primarily driven by some factors. Firstly, Russia perceives NATO's expansion as a threat to its security, which it views as a violation of prior agreements made during Germany's reunification and the principle of indivisible security (Dunford, 2023). The same point of view has Lippert (2024). He thought that there is a big confrontation between Russia and NATO. This article applies a mixed methodology to examine the Russo-Ukraine War as a case study of war causation, focusing on the failure of Conventional Arms Control (CAC) agreements (Çalışkan, 2022). It argues that the erosion of security and deterrence for Russia against NATO led to the conflict. The study suggests that the failure of CAC agreements can lead to war, highlighting the need for a comprehensive CAC agreement in Europe to establish and preserve a military balance. His paper contributes to causes of war theory-building by showing how Putin's concerns over Russia's declining military power and standing, combined with NATO's increasing capability and forces in eastern Europe, contributed to the conflict. The failure of these agreements led to Russia's invasion of Ukraine to shift the military balance (Lippert, 2024). While both classical and neoclassical realism have their limitations, they show that realism can provide explanations beyond international power structures. These approaches offer multifaceted accounts of why states, such as Russia, choose to take actions like invading Ukraine (Smith & Dawson, 2022). At the same time, the results of the paper underscore the intentional cultivation of a specific mindset by Putin's administration, which diverges from traditional notions of the Russian nation. The war between Russia and Ukraine can be attributed to several key factors. One significant factor is the radicalization of the Putin regime, leading to increased autocracy and a growing disconnect from the West. Concurrently, Ukraine has been undergoing a process of democratization and aligning more closely with Western values and institutions. These contrasting trajectories have heightened tensions between the two countries, making the outbreak of war more likely. Additionally, these factors continue to influence the dynamics of warfare in the region (Sasse, 2022). Therefore, the investigation of the complex historical causes and geopolitical goals that underlie the current confrontation between Russia and Ukraine constitutes the scientific uniqueness of this work. Understanding the fundamental reasons of the conflict is one of the many elements of practical significance. The study, in particular, contributes to our understanding and illumination of the historical processes that gave rise to the war between Russia and Ukraine. This can therefore pave the way for novel approaches to current problems and aid in the comprehension of the underlying causes of conflict.

However, this study also has a low limitation. Since it is built on the analysis of works available on the Internet. It is possible to neglect those historical works that are not available online. Another limitation is the possible subjectivism present in scientific works. This is a limitation of the author's attempt to verify by validating and comparing the various works and available sources. At the same time, the scientific novelty of this research also lies in promoting dialogue and conflict resolution. By uncovering historical antecedents, the work contributes to fostering dialogue between involved parties and external actors. The main limitation of this study is the consideration of literature written primarily in English. Special attention is paid to works in Ukrainian and Turkish. However, works written in other languages were completely ignored. Another limitation of this work is the emphasis on publications by contemporary authors.

## Conclusions

The paper showed the historical origins of the Russian-Ukrainian war through the prism of the scrupulous historical relations of these states. It is shown that the geopolitical ambitions of Russia towards Ukraine have deep historical roots, encompassing a complex interplay of historical, cultural, economic, and strategic factors:

1. The ongoing war is characterized as a significant confrontation with far-reaching implications, extending beyond territorial disputes and reshaping the geopolitical equilibrium.
2. The deep-seated cultural and ideological differences between Ukrainian and Russian identities, explored through historical narratives, underscore the complexity of this geopolitical struggle. It highlights the ancient ties connecting Ukraine with Europe, rooted in Greco-Roman influences, trade networks, dynastic marriages, and the adoption of pan-European Christianity during the era of Kyivan Rus. The Russian strategic collaboration with the Golden Horde shaped the governance structures of Moscow, solidifying the trajectory of Eastern-style despotism in the region.
3. The deconstruction of Ukrainian consciousness during the Russian Empire laid the groundwork for the establishment of Soviet power. The Bolsheviks employed tactics such as unfulfilled promises and the establishment of a puppet pro-Soviet government in Kharkiv, creating a façade of internal conflict while inviting the Russian Red Army to intervene. Similar strategies were observed during the Russian annexation of Crimea and the start of the Russian-Ukrainian war in 2014, involving promises of material benefits, economic prosperity, and the creation of paramilitary formations in Eastern Ukraine. This echoes past Soviet practices, serving to deflect suspicion from Russian authorities before the open invasion in 2022.

Together, these historical accounts draw attention to the ongoing conflicts and effects of linguistic, political, and geopolitical factors on Ukraine's development. Russification and geopolitical alignments have left a lasting impact on the geopolitical landscape of the modern region, highlighting the complex and long-lasting effects of historical developments on Ukraine's political and cultural scene. All things considered, the Russian-Ukrainian war offers a fertile ground for multidisciplinary study, providing chances to delve further into the aspects of history, geopolitics, sociology, economics, and law. Scholars have the chance to offer insightful opinions as the conflict develops, which can influence international discourse, shape policy, and advance a more sophisticated comprehension of the intricate problems at hand. However, this study opened up new perspectives for research. In particular, it is worth characterizing in more detail the impact of the indigenization policy on the Ukrainian people, since different researchers have different attitudes to this complex issue. Further research should also be devoted to the more detailed origin of Russia and to characterize the role of the Moscow principality in the Middle Ages and its relationship with the Kyiv principality. The author believes that these areas are debatable and will obviously require more research in the future.

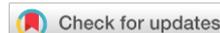
The practical implications are quite broad. The study will provide policy makers and diplomats with a deeper understanding of the historical and geopolitical causes of the war, which will help them to make more informed decisions about strategy and tactics in relations with Russia and Ukraine. The results can also help the international community to build support for Ukraine by providing historical evidence of Russia's aggressive actions and their impact on Ukrainian culture and sovereignty.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.10>

How to Cite:

Kolomoitsev, M., Tiulieniev, S., Perepelytsia, S., Popov, V., & Iemets, I. (2024). The defense attorney in Ukraine: challenges and opportunities in the framework of international standards. *Amazonia Investiga*, 13(77), 135-144. <https://doi.org/10.34069/AI/2024.77.05.10>

## The defense attorney in Ukraine: challenges and opportunities in the framework of international standards

Адвокат в Україні: виклики та можливості в рамках міжнародних стандартів

Received: March 28, 2024

Accepted: May 15, 2024

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### Abstract

The right of a person to protection is one of the fundamental human rights. The governments of many countries are taking measures to bring national legislation in line with international standards in the field of human rights protection. Despite this, many issues remain debatable and uncertain, and national law enforcement agencies sometimes continue to resort to violating these rights.

This comparative legal study was carried out by studying primary legal materials, as well as secondary legal materials related to the researched legal issues. The theoretical and empirical basis of the research is represented by legislative acts, theoretical research and judicial practice analyzed using a qualitative approach.

### Анотація

Право людини на захист є одним із фундаментальних прав людини в сучасному світі. Уряди багатьох країн вживають заходи для приведення національного законодавства у відповідність до міжнародних стандартів у сфері захисту прав людини. Незважаючи на це, багато питань залишаються дискусійними та невизначеними, а національні правоохоронні органи подекуди продовжують вдаватися до посягання цих прав.

Це порівняльно-правове дослідження здійснювалося шляхом вивчення первинних правових матеріалів, а також вторинних правових матеріалів, що стосуються досліджуваної правової проблематики. Теоретична та емпірична основа дослідження представлена законодавчими актами,

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It is substantiated that the lawyer's monopoly on representing a person in criminal proceedings is justified and meets international standards of professionalism in the provision of legal assistance, because, unlike a person who is a lawyer by profession, lawyers pass qualification exams, have practical experience, undergo internships and constantly improve their professional level. It was determined that the rights of the defense counsel in criminal proceedings are derived from the rights of the person he is defending. Typical violations of the right of a person to defense, allowed by the national law enforcement agencies of European countries, have been established. It is argued that the improvement of the legal status of a lawyer should be carried out at the national level. This should be done taking into account international legal principles and judicial practice.

**Keywords:** lawyer, defender, suspect, criminal process, criminal proceedings, right to defense.

теоретичними дослідженнями і з використанням якісного підходу проаналізовано судову практику.

Обґрунтовано, що монополія адвоката на представництво особи в кримінальному процесі є виправданою та відповідає міжнародним стандартам професійності в наданні правової допомоги, оскільки, на відміну від особи, яка є правником, адвокати складають кваліфікаційні іспити, мають практичний досвід, проходять стажування та постійно підвищують свій професійний рівень. Визначено, що права захисника у кримінальному судочинстві є похідними від прав особи, яку він захищає. Встановлено типові порушення права особи на захист, що допускаються національними правоохоронними органами європейських держав. Аргументовано, що вдосконалення правового статусу адвоката має здійснюватися на національному рівні. Це має відбуватися з урахуванням міжнародно-правових принципів і судової практики.

**Ключові слова:** адвокат, захисник, кримінальний процес, кримінальне провадження, право на захист, безоплатна правова допомога, законодавство, підозрюваний.

## Introduction

The entire judicial system aims to protect human rights, restore violated rights, and compensate for the damage caused by offenses and crimes. Every person is guaranteed the right to protection by international standards in human rights protection. The state is responsible for ensuring the protection of human rights. However, in judicial practice, there are quite a few cases when this international principle is still violated.

The African Court of Human Rights, the European Court of Human Rights, and the Inter-American Court of Human Rights operate to protect human rights in the world. The African Union and the African Commission on Human and Peoples' Rights to monitor human rights violations in Africa established the African Court on Human Rights in 2004. 31 out of 54 independent states have ratified the protocol on legitimizing the activity of this court as an alternative judicial way of protecting human rights. The court consists of 11 judges who are citizens of member states.

The European Court of Human Rights (ECHR) is located in Strasbourg, France, and interprets the European Convention on Human Rights. This convention was signed in 1950 by 47 European states (United Nations, 1950). The International Criminal Court also operates. Its jurisdiction extends to war crimes, genocide, and crimes against humanity and aggression. Persons convicted by the International Criminal Court are prosecuted at the international level. It is an intergovernmental organization based in The Hague, Netherlands. When national governments cannot prosecute criminals, the International Criminal Court fills this role. It comprises 123 member states and can only conduct investigations in these countries. 42 countries have not signed the Rome Statute, so the International Criminal Court cannot prosecute persons from these countries.

Today, the work to ensure human rights is carried out more and more actively and at all possible levels: international and national. Under such conditions, the main guidelines in the direction of the initiated process of improving the system of protection of human rights and freedoms should be:

- Use of positive experiences in other states;

- Implementation of positive experience in strengthening human rights guarantees into national legal systems;
- Taking into account the norms of precedent law in the activities of law enforcement and judicial bodies;
- Improve the system of legal provisions to determine the legal status of a defense attorney in criminal proceedings, etc.

The principle of ensuring the right to protection is enshrined in the legislation of all democratic countries. This became a natural consequence of the criminal process democratization and strengthening its participants' guarantees. However, the analysis of judicial practice and theoretical developments shows that the level of trust citizens in lawyers is lower than in employees of pre-trial investigation bodies or judges (Pryce & Wilson, 2020).

At the same time, it is a valid observation that defendants with a lawyer have better results than those who do not have a lawyer. Research data confirm these theses. Thus, nonviolent defendants who were assigned counsel at bail hearings were 2.5 times more likely to be released on recognizance and 2.5 times more likely to have their bail reduced than those not represented by a lawyer (Colbert, Paternoster & Bushway, 2002).

Such a situation requires an analysis of the legal status of lawyers in different states and the determination of prospects for improvement. In our opinion, to guarantee the effectiveness of protection in modern conditions, it is important to apply the method of comparative legal research and systematic analysis of the experience of foreign countries, including its interpretation and practical examples of the application provisions of international legal acts in the decisions of judicial institutions.

To solve the problem raised in the article, in the first point of the section "Results and discussion", the grounds for attracting a defense attorney are determined by the legal status of the defense lawyer is determined by the legislation of Ukraine. The second section of the main part is devoted to analyzing the legal status of a lawyer in Germany, Bulgaria, France, Poland, the Czech Republic, Estonia, and the USA. It was possible to do this based on an analysis of the laws of foreign countries. A separate analysis within this subsection defines the characteristics that a person must meet to obtain a lawyer's status under the national legislation of these countries. The third section of the main part of the article is aimed at defining international standards in the field of personal protection from criminal prosecution. In addition, based on the analysis of the decisions of international judicial institutions, typical examples of violations of a person's right to protection have been identified. The conclusions summarize that the lawyer's monopoly is a justified step toward the professional protection of a person. It is summarized that the defender's rights are derived from the rights of the person he is protecting, and the prospects for improving the legal status of the defender are outlined.

## Literature Review

In jurisprudence and literature, it is rightly noted that one of the demands of Ukraine on the path of integration into the European Union is the reform of the legal profession and the establishment of legislation on its activities. It should reproduce the model of the democratic legal institution of advocacy (Inshyn et al., 2024). It is important that the proper functioning of the advocacy system ensures the rule of law in a democratic state (Oliinyk et al., 2021). Such directions of state development determine the need to find ways to improve the functioning of the Institute of Advocacy.

The principle of a fair trial requires that suspects and accused persons have access to an effective defense. Effective defense in criminal proceedings involves several interrelated procedural rights. All international conventions and other legal instruments relating to criminal proceedings recognize the right to legal aid. To be effective, the right to legal aid requires professional, dedicated, properly trained, and experienced lawyers. The effectiveness of the right to legal aid also requires suspects and accused persons to be informed of this right, understand its importance, and be prepared to exercise it. Therefore, mechanisms should be introduced to ensure that suspects and accused persons are informed about their right to legal aid and how to get it, including those who cannot pay for it (Cape & Namoradze, 2012).

Scientists constantly pay attention to the study of these issues. I. V. Dubivka (2017) analyzed the provisions of the legislation of certain foreign countries, namely, Germany, France, and Great Britain, in terms of regulating the participation of a defender (lawyer) in a criminal trial. OHM. O. Skryabin conducted a

comparative legal characterization of the norms of domestic criminal procedural legislation, which regulate the participation of a defense attorney in criminal proceedings in Ukraine, with the norms of the legislation of developed countries of the world (in particular, Lithuania and Germany) (2015).

I. M. Bihunets (2020) outlined the state of scientific development of such a participant in the criminal process as a lawyer. He defined the rights and obligations of the defense attorney during the pre-trial investigation and guaranteed his professional activity. This author also characterized the powers of the defense attorney as a subject of proof.

K. S. Stoyanov (2024) investigated the theoretical and legal provisions of the procedural status of the defender in criminal proceedings and his procedural order in the investigation, the provision of professional legal assistance to the victim, the applicant, and the witness in the context of European standards in the pre-trial investigation.

Yednak, V., Vitiuk, D., Krut, K., & Grokholskyi, V. (2020) consider features of the implementation of the principle of ensuring the right to protection in Ukraine. Research on criminal liability issues for obstructing the legal activity of a defense attorney in court proceedings has also been the subject of study by Ukrainian and foreign scholars on several occasions (Akimov et al., 2022; Ruzmetov & Ablamsky, 2021).

Indonesian scientists also point out the problems of protecting individual rights by the norms of international law. After all, the national government still uses a military approach to conflict resolution. In this regard, scholars state that the role of the government is 80%, and the role of the security forces is 20%, so the use of violence continues, which continues to take the lives of many citizens (Nugroho, 2024).

Despite the large number of scientific works and judicial practice, the practical activity of protecting a person from criminal prosecution in many countries is not perfect. The issue of the government's responsibility to comply with the norms of international law, such as the Declaration of Human Rights, the Universal Declaration of Human Rights, and the International Covenant on Civil and Political Rights is extremely relevant. Therefore, the issues of regulatory regulation of this activity need to be reviewed and appropriate changes made. It is recommended to reach such conclusions by conducting a comparative legal analysis of the status of the defenders in Ukraine and foreign countries. The study of foreign experience and its implementation is the key to the effective improvement of the legal system of each state.

## Methodology

The purpose of the article is defined as conducting a comparative study of the norms of criminal procedural legislation of Ukraine with the legislation of other countries of the world, which regulate the legal status of a lawyer in criminal proceedings. This study focuses on identifying legislative gaps and formulating appropriate proposals for their elimination.

The method of research is normative legal research. It is carried out by studying primary legal materials, as well as secondary legal materials related to the researched legal issues. Data were collected through document study and library research and analyzed using a qualitative approach. To solve this goal, the authors solved the following tasks:

1. This paper analyzes legislative norms regarding regulating the activities of a defense attorney in criminal proceedings.
2. Subjects authorized to protect the rights of a suspect accused in criminal proceedings have been identified.
3. The courts recognize typical errors as violations of a person's right to legal aid and define them.

The research used several research techniques and methods. First, with the help of a conceptual analysis, the current state of the legal profession in Ukraine was determined. For this, several research techniques and content analysis methods were used to study legislation as a basis for research. This made it possible to define normative acts that regulate the activities of the bar and the legal status of defenders in criminal cases.

In the future, to determine the legal status of a lawyer in foreign countries, a complex of general scientific methods was used, such as analysis and synthesis, generalization, logical-structural analysis, and control.

Structural and functional analyses were applied to analyze the European Court of Human Rights case law. This made it possible to identify decisions in which the person's right to defense was violated. Out of 110 court decisions, 17 were selected. Information processing methods were used to analyze these court decisions. This made it possible to determine typical violations of a person's right to protection, which were allowed by law enforcement agencies in European countries during the criminal prosecution of a person.

Sociological methods and quantitative-statistical methods were used to collect empirical data, as well as to survey practicing lawyers to determine trends in the further development of the legal profession in Ukraine.

## Results and discussion

### I. The legal status of a lawyer and the peculiarities of ensuring the right to defense according to the legislation of Ukraine

In Ukraine, everyone arrested or detained must have his or her rights explained immediately. One of these rights is the right to protection. Every person is guaranteed the opportunity to defend himself personally from the moment of detention and to use the legal assistance of a defender (Law of Ukraine No. 254k/96-VR, 1996).

A person suspected of committing a criminal offense at various stages of criminal procedural activity may acquire the status of suspect, accused, acquitted, or convicted. At all stages, every person is guaranteed the right to protection. It means the possibility of providing oral or written explanations regarding the suspicion or accusation (Husieva et al., 2024). It also includes the right to collect and submit evidence, to take personal part in criminal proceedings, to use the legal assistance of a defense attorney, as well as to exercise other procedural rights provided for by the Criminal Procedure Code of Ukraine (Law of Ukraine No. 4651-VI, 2012).

The international standard regarding the professionalism of legal assistance is embodied in the provisions of the current legislation of Ukraine. In Ukraine, a defense attorney is a lawyer whose information is entered in the Unified Register of Lawyers of Ukraine and whose activity has not been suspended or terminated by the Bar Council of the relevant region.

The right to legal assistance in criminal proceedings has:

- The suspect;
- A person in respect of whom sufficient evidence has been collected to report the suspicion of committing a criminal offense, but no suspicion has been reported in connection with his death;
- The accused;
- Convicted;
- Justified;
- A person in respect of whom the use of coercive measures of a medical or educational nature is expected or the issue of their use has been decided;
- A person in respect of whom the consideration of extradition to a foreign state (extradition) is envisaged (Law of Ukraine No. 4651-VI, 2012).

The legal status of a defender in criminal proceedings is derived because he uses the rights of the person he protects. The defense attorney acts on behalf of the client and enjoys the status of an attorney, and therefore, the rights and obligations specified in the Law of Ukraine "On Advocacy and Advocacy." Realizing these rights also provides an opportunity to ensure the legal protection of the individual.

In addition, during the performance of advocacy activities, the advocate has the right to perform any actions. By their nature and meaning, such actions must not be prohibited by law and comply with the rules of lawyer ethics and the contract on providing legal assistance. These include the following actions:

- The right to address legal requests to state authorities, local self-government bodies, their officials and employees, legal entities, as well as to natural persons, with the consent of these persons;
- The right to get acquainted at enterprises, institutions, and organizations with information necessary for the activity of a lawyer, except for those containing information with limited access;

- Draw up statements, complaints, and petitions and submit them by the procedure established by law;
- To be present during consideration of your petitions and complaints and to give explanations on the essence of the petitions and complaints;
- To collect information about facts that can be used as evidence, to seize and receive things and documents in the manner prescribed by law, to interview persons with their consent (Law of Ukraine No. 5076-VI, 2012);
- To use technical means, in particular, to copy materials of criminal proceedings, to record procedural actions and the course of the court session in which he participates as a defense attorney, etc. (Sibirna, & Gapyak, 2021).

## II. Implementation of the right to legal protection of a person in the world

In Germany, the Federal Regulation on the Legal Profession, adopted in 1959, determines the legal status of the legal profession. It defines that a lawyer must defend or act as an assistant if he is appointed as a defender or an assistant by the provisions of the Criminal Procedure Code, the Law on Administrative Offenses, the Law on International Legal Assistance in criminal cases, or the Act on cooperation with the International Criminal Court (Federal Ministry of Justice, 1959).

In German criminal proceedings, lawyers and law professors who hold relevant positions in German higher education institutions and who, according to the Framework Law on Higher Education Institutions, are qualified and entitled to hold the position of a judge can perform the role of a defense attorney. Other persons can be defenders only if the court approves their candidacy. Suppose the selected person does not belong to those who can be appointed as defense counsel. In that case, he can only be allowed to be a defense counsel of choice and a person with the right to do so (Service provided by the Federal Ministry of Justice, 1987).

According to the Republic of Bulgaria legislation, anyone practicing law can be a person's defender. Separate norms determine the grounds for disqualification of the defense counsel. These grounds include:

- The defender is or was the defender of another defendant, and the defense of one contradicts the defense of the other;
- The defender represented or advised another defendant, and the defense entrusted to him contradicts the defense of another defendant;
- The person represented or advised another party;
- The defender has already participated in the process in another procedural status;
- Who is a spouse, a direct heir without restrictions, a collateral line up to the fourth degree, or a relative by law up to the third degree to a judge, jury, prosecutor, or investigative body in the case (Law of the Republic of Bulgaria No. 502-01-11/10.08.2005, 2005).

The National Bureau of Legal Aid of Bulgaria deals with issues of legal aid organizations. The specified changes were due to the processes of European integration and the existing judicial practice of the European Court of Human Rights. Despite using European Union practices and taking measures to improve Bulgarian legislation, there are still certain questions regarding timely access to quality legal aid and representation. Violations are most often guaranteed access to a lawyer within 24 hours of police arrest. Suspects detained by the police for 24 hours are not informed of their right to free legal aid, and lawyers visit only 4% of such detainees on the first day. The legal right of a suspect being questioned as a witness to a lawyer is also too limited. In addition, there are noticeable problems with the financing centers that provide free assistance, the involvement of lawyers to provide it, and the quality control of relevant services. In addition, the remuneration of lawyers does not correspond to the actual work performed. The system of selecting lawyers to provide free legal aid does not function properly and needs to be revised (Cape, & Namoradze, 2012, p. 155-156).

France has a National Bar Association and 164 bar associations. At the same time, the legal profession's access conditions are quite strict. They are defined by the Decree of 1972, as well as requirements provided for defense lawyers in France and criminal liability for non-compliance.

In the Criminal Procedure Code of the Republic of Poland, Chapter 9 is devoted to the activities of a defender and a lawyer. The Law "On Advocacy" was also adopted. There are two legal professions in Poland, the implementation of which is related to providing legal aid. He is a lawyer and legal adviser. A

lawyer engaged in advocacy is subject to mandatory civil liability insurance for damage caused by his activities. A person can become a lawyer's assistant (applicant) only after passing the applicant qualification exam (Law of the Republic of Poland, 1997).

In Poland, no institution provides free legal assistance by a lawyer as a type of state guarantee. The state and local self-government bodies jointly maintain the network of more than 1,500 BPD offices. These offices provide only primary legal assistance - legal advice and clarification. Unrelated state and non-state institutions and organizations provide secondary legal assistance. Therefore, due to the lack of an effective unified system of free legal aid, the institution of an independent provider is extremely widespread in the country (Onishchik, 2022, p. 277-278).

In the Czech Republic, the Law of the Czech Republic on Advocacy dated 13.03.96 No. 85/1996 is in force (Law of Czech Republic No. 85/1996, 1996). The Criminal Procedure Code determines issues of the status of a defense attorney in criminal proceedings. According to the current provisions, a defense attorney in a criminal case is a person who has the right to protect the interests of a person based on the Law on Advocacy and the Law on Legal Consuls (Law of the Czech Republic No. 141/1961, 1961).

In Poland, in contrast to France and Ukraine, the public prosecutor can control the defense counsel's correspondence with the accused (Law of the Republic of Poland, 1997). We believe that this contradicts the principle of confidentiality.

In Estonia, the defender in criminal proceedings is a lawyer, and with the permission of the person conducting the proceedings, other persons whose powers derive from the agreement signed with the client (contractual defense counsel) or other persons who have completed a state-accredited educational program for obtaining an academic legal education, whose powers derive from the agreement signed with the client, and the lawyer whose powers derive from his appointment by the investigative body, the prosecutor's office and the court (Law of the Republic of Estonia, 2003).

The practice of Great Britain is significantly different from the experience of the listed countries. Historically, this state has formed a division of practicing human rights defenders into two groups - solicitors and barristers. These entities have the right to perform the function of defense in criminal proceedings, but the authority to exercise defense differs between them. Solicitors have a limited right to make public appearances in court; they mainly meet with clients, suspects, or accused, act on their behalf, and help gather evidence in their favor. In turn, barristers are lawyers with the right to appear in courts of various instances, and the General Council of the Bar controls their work. The powers of barristers include: drawing up procedural documents (detailed claims or withdrawal of a claim); consulting on legal issues; and representing interests in court. Lawyers are not authorized to receive instructions from clients, engage in the disclosure process, communicate with witnesses, conduct and manage investigations, or engage in pre-trial/out-of-court settlement of disputes (Lisna, 2021, p. 125).

It should be noted that subject to the participation of lawyers in certain categories of cases, several additional requirements may be put forward for the defense counsel. The rules of the International Criminal Court can be cited as an example of such a requirement. It stipulates that the defense counsel must have established competence in international or criminal matters and relevant experience, whether as a judge, prosecutor, lawyer or in another similar role in criminal proceedings. The counsel for the defense must have excellent knowledge and fluency in at least one of the working languages of the Court, and the defender may be assisted by other persons, including law professors, with relevant experience (International Criminal Court, 2002).

In addition to the requirements regarding the competence of the representatives of the defense side, several moral and ethical requirements are also put forward. For example, US Institute of Diplomacy and Human Rights scientists consider a defender "the one who listens, the one who has special knowledge" (The US Institute of Diplomacy and Human Rights, 2021). Thus, the main criterion of the defender is the ability to listen and hear both his client and the employees of pre-trial investigation bodies. They then consider the received information and special knowledge for personal protection.

### III. International standards of personal protection in criminal proceedings

International standards determine that all persons have the right to seek the assistance of a lawyer. In addition, all citizens can choose their defenders and legal means of protection. Governments of many states undertake to ensure access to effective procedures and mechanisms for effective and equal access to lawyers for all persons within their territory and under their jurisdiction. This happens regardless of race, color, ethnic origin, sex, language, religion, political or other beliefs, national or social origin, property status, etc.

International standards in human rights protection provide that one of the rights of every person is the right to legal assistance (protection). In this regard, the law enforcement agencies of each state must ensure that a person is informed about his right to seek the help of lawyers:

- 1) During arrest or detention;
- 2) When charged with a criminal offense (Akimov et al., 2022).

It is one of the fundamental principles of a fair trial. This right includes three separate elements:

- 1) The right to defend oneself personally;
- 2) The right to the legal assistance of a defender, and in the event of a lack of funds to pay for legal assistance and when the interests of justice require it, the right to free legal assistance,
- 3) The right to choose the lawyer.

The analysis of court practice shows that the following situations should be considered as a typical infringement or restriction of a person's right to protection:

1. Limitation of access to the defender. Access to a lawyer at the early stages of the proceedings is an important safeguard, as national law may foresee the consequences of the accused's conduct in the initial stages of police questioning, which will play a decisive role in the prospects of the defense at any later stages of the criminal proceedings.
2. Giving a person the status of a witness under the conditions when there were real grounds to believe that the person was involved in the commission of a crime. That is, de facto, the person was a suspect.
3. Not informing the person of his right not to testify against himself or the use of torture or ill-treatment.
4. Violation of the principle of equality of the parties.

#### Conclusions

Each country responds appropriately to regulate the procedure for protecting human rights and implements appropriate mechanisms to create procedures for their practical implementation. However, many issues remain debatable and/or uncertain. The lawyer's monopoly on representing a person in criminal proceedings is well founded. It meets international standards for professionalism in the legal assistance provision. After all, unlike a person who is a lawyer by profession, lawyers pass qualification exams, undergo internships, and improve their professional level. Regarding them, it is possible to apply measures of disciplinary responsibility; they are the object of criminal law protection.

Based on the analysis of the peculiarities of regulating a person's legal status, we believe that the defender's rights are derived from the rights of the person he is protecting. A lawyer must perform his duties regarding the protection of a person at a professional level.

We constants that a typical infringement or limitation of a person's right to defense is:

- 1) Limiting access to a defense attorney;
- 2) Granting a person the status of a witness under the conditions when there were real grounds that he was involved in the commission of a crime;
- 3) Not informing the person of his right not to testify against himself or the use of torture or ill-treatment;
- 4) Violation of the principle of equality of the parties.

We believe that work on improving the status of a lawyer should continue at the state level. This should be done by considering international legal principles and judicial practice.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.11>

How to Cite:

Akansu, V., & Farjami, E. (2024). Analysis of transect theory in Kyrenia West Coast settlement dynamics. *Amazonia Investiga*, 13(77), 145-158. <https://doi.org/10.34069/AI/2024.77.05.11>

## Analysis of transect theory in Kyrenia West Coast settlement dynamics

### Girne Batı Kıyısı Yerleşim Dinamiklerinde Transekt Teorisinin Analizi

Received: April 3, 2024

Accepted: May 28, 2024

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#### Abstract

Besides Nicosia, there are four main settlements in North Cyprus: Kyrenia, Famagusta, Trikomo and Morphou. Kyrenia is one of the most important ones preferred by local and foreign people to live because of its social, environmental and economic values. In this direction, the city has experienced development spread towards the center perimeters to suburban and rural areas with increasing population. Thus, the ecological and socio-cultural sustainability values wear off. For protecting the socio-cultural and ecological values of the area and increase the level of sustainability approaches, an interference with systematic instruments from cities to rural areas is needed. Accordingly, the determination of the itinerary along with transect theory is important for the development of settlements. The data derived from the government planning organization and statistical data from the Cyprus Turkish Building Contractors Association (CTBCA) between 2004-2011-2016. The method is determined by SWOT analysis and the comparative analysis of the settlement dynamics of suburban and rural settlements towards the Kyrenia western-coastline.

**Keywords:** Transect theory, Urban- Suburban, Rural, Kyrenia western coastline, Sustainability.

#### Introduction

Urbanization has grown at an unparalleled rate during the previous few decades. The United Nations estimates that 55% of the world's population today resides in cities, and by the year 2050, that number will have nearly doubled to 70%. Urbanization has led to a number of issues, including rising social inequality, limited access to public an amenity, and a general disdain for environmental factors, which collectively

#### Özet

Kuzey Kıbrıs'ta Lefkoşa'nın yanı sıra dört ana yerleşim yeri bulunmaktadır: Girne, Gazimağusa, Trikomo ve Güzelyurt. Girne sosyal, çevresel ve ekonomik değerlerinden dolayı yerli ve yabancı insanların yaşamak için tercih ettiği en önemli ilçelerden biridir. Bu doğrultuda kentte artan nüfusla birlikte merkez çevrelere doğru banliyö ve kırsal alanlara yayılan bir gelişme yaşanmıştır. Böylece ekolojik ve sosyo-kültürel sürdürülebilirlik değerleri aşınıyor. Bölgenin sosyo-kültürel ve ekolojik değerlerinin korunması ve sürdürülebilirlik yaklaşımlarının düzeyinin artırılması için kentlerden kırsal alanlara kadar sistematik araçlarla müdahaleye ihtiyaç duyulmaktadır. Buna göre güzergahın kesit teorisi ile birlikte belirlenmesi, yerleşmelerin gelişimi açısından önemlidir. Veriler devlet planlama teşkilatından ve Kıbrıs Türk İnşaat Mühendisleri Birliği'nden (CTBCA) 2004-2011-2016 yılları arasındaki istatistiki verilerden elde edilmiştir. Yöntem, SWOT analizi ve Girne batı kıyı şeridinde doğru banliyö ve kırsal yerleşimlerin yerleşim dinamiklerinin karşılaştırmalı analizi ile belirlenmektedir.

**Anahtar Kelimeler:** Transekt teorisi, Kent-Banliyö, Kırsal, Girne batı kıyı şeridi, Sürdürülebilirlik.

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contribute to the problem. Urbanization activities that have been accelerating since the Industrial Revolution are one of the main reasons for the environmental crisis that each region is facing currently as humankind. From this situation, both rural and urban habitats in a community get affected, and there is a lot of pressure on these habitats in terms of shrinking of the resources that nature has provided (Dubey & Narayanan, 2010). Therefore, it can be said that globalization and modernization trends that started in the last century bring serious environmental disasters in settlements (Asilsoy et al., 2017; Akansu & Gertik, 2018; Yildirim et al., 2020). After the Miami 21 codes has being utilized, the Urban Transect has been developed and implemented in a number of US cities, including Mississippi, Nashville, and Texas. The Urban Transect-based codes gained traction in the US and have since been adopted and modified for use in many contexts across the entire world (Sanders et al., 2016); (Hussein & Al-Jameel, 2023). The transect has been used more often in landscape architecture, mostly in Greek urban environments at micro spatial scales, moving beyond the multidimensional space of the rural landscape. Duany & Talen (2002); Vlami et al. (2023).

Socio-cultural continuity values “to respect, preserve and maintain the knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles” (Ghilardi, (2001, pp. 61). relevant to both cultural diversity through the conservation and sustainable use of historical places including urban and architectural heritage.

Consideration about the conservation of architectural heritage instead of demolishing them has always been a worthy topic, and lately, this topic is investigated by means of both environmental, socio-cultural and economic points of view. Furthermore, the request for ecological sustainability in different fields is increasing, particularly in architectural conservation (Farjami, 2021). One of the most important of these disasters is the spread of cities towards suburbs and rural areas. Auclair and Fairclough (2015, p. 3) discuss the consistency of conservation and resilience themes with focus on cultural and social sustainability dimensions which should not be reflected as a separate pillar but as a vital part of sustainable development pillar named as socio-cultural pillar (Lebel et al., 2006), (Farjami, 2021).

As a result of expansion of urban settlements towards suburban and rural areas within the population growth, it has been observed that the ecological and socio-cultural values have disappeared in time. Therefore, Human population growth together with competitive land use causes land scarcity, conversion of wild lands to agriculture and other uses (Kanianska, 2016). While the suburbs competed with urban, they lost the necessary ecological values of rural areas, agricultural/pastoral landscapes and cultural interactions in traditional architecture. The topographic features and agricultural/ pasture landscapes that reflect the ecological diversity of the rural area are transformed into parcels in land qualification, and even take a new look by using serial production materials in factories instead of traditional materials which can serve an economical purpose in building and selling architecture. Yuan et al. (2019) conducted a study on the association between urban environment and how the higher density of the population can lead to environmental degradation. The results of the study suggested that noise pollution is a significant issue in urban areas, and as the population of these areas starts to expand, the rate of higher environmental risk increases. It is so because a higher population leads to congestion in terms of housing and traffic as well that eventually affects the overall environment (Mahmood et al., 2020).

In relation to that, this situation causes problems in the interaction of urban and rural settlements and causes the suburban and rural areas to act like cities. As it has been observed; with the disappearance of agricultural / pasture lands, agriculture and livestock are starting to decrease or even not to be done. This situation leads people, who live in rural areas, to turn towards different business areas. It causes difficulties in the ecological values of the region and in handing the environment down to the next generations. In this direction, the decrease or the disappearance of the climate and vegetation cover of the region causes the biological diversity (Hyderabad, 2009), which is important for the living experience to be negatively affected. Uncontrollable building dynamics (floor heights, building densities, uncontrolled development of green spaces and built-up areas). The problematic aspect of the work reveals the inadequacy of planning studies and the negative impact of the autonomous decisions on the parts of the land. The overcoming of this problem reveals the necessity of considering and evaluating the rural values of the urban areas. Therefore, as the findings of this research, the importance of ecological and environmental aspects in urban rural context has been considered by presenting the case study analysis in Kyrenia coastline.

## Literature Review

Ghilardi, L. (2001) Preserving the present needs without compromising the capacity of upcoming generations in order to encounter with their needs, this development became sustainable as discussed in the Conejos et al., 2011. In order to contribute to the development of rural areas together with urban areas but preserving their own values, a new urbanism movement emerged in America in the late 1980s and early 1990s. In this way, planning activities to be done are aimed to increase and support human relations, to offer neighboring units where social relations can be made more easily and permanently in the cities that are pushed to loneliness by becoming individualized in the modern world to define each other descriptively instead of separating living, working and entertainment areas (Onuc, 2002). Moreover, awareness of the need for urban planning policies and private entrepreneurship has been considered for different contexts and the Transect scheme, which is a system that aims to arrange all the elements of the built environment has been developed. (Ozidal, 2010).

The Transect scheme, which deals with urban-rural areas; reveals the edges which include the center, the general area, the rural and urban, with various urban densities in the different types of settlement and concepts (Bressi, 2002; Akansu & Karaman, 2023). Thus, the features and design characteristics of the lighting elements, building densities and uses, public spaces, sidewalks, intersections, parking spaces, green spaces and landscaping items will be taken for each series as well as transportation axes, facades, masses, street silhouettes. In addition, it is considered that all urban elements within the system are in a suitable location and continuity (Walters, 2007; Stueteville & Langdon 2003). In this regard, the urban-rural scales categorization structure offers settlement proposals that include natural open spaces from the urban core to the outside of the urban. Thus, the suburbanization that exists in the cities is important in decentralization and in the curing of the cities that grow unconsciously in the horizontal.

Worldwide, it has been observed that these studies have been done in mostly large square measure and densely populated settlements. Additionally, application of sustainability approaches on the urbanization identity have been investigated in minor scale. It also needs to be applied to settlements with a smaller surface area and population, such as Cyprus Island. Accordingly, the necessity of the method to be used within the scope of planning studies that can intervene with urban areas with more dynamic means to rural areas is important for the transfer of settlements to future generations and the formation of livable environments. This article has been conducted by analyzing approximately 1000 researches and studies retrieved from the Web of Science and local articles to achieve trends and patterns characterizing different decades.

Accordingly, this study claims to reveal the research question sourced from uncontrolled development of the building dynamics, densities, green area, and constructed area as a result of urban expansion that revealed due to structuring from urban areas towards rural areas in the small square measure island. Newly urbanizing areas on the edges of cities have not been researched very much but this study tries to understand what is happening there as it tends to result in quite a lot of ecological decline. The northern shoreline of the Cyprus island affects the intensity of construction in the city center of Kyrenia, but still the purpose is, the examination of the dynamics of suburban towards western settlements and residents in rural areas with the transect theory. This article attempts to explore the merit of the Transect Theory for interpreting the urban developments in Kyrenia. In this context, the proposals to be put forward will play an active role in the planning studies to be carried out. In following up the introduction, the article structured into three sections: The methodology explanation, case studies simulations and assessments with final remarks and future perceptions for this research.

**Presenting the Literature review title is not evident.**

## Materials and Methods

The study was developed based on both qualitative and quantitative method. As for qualitative method, the literature review has been conducted via grounded theory method. The observation and case study analyze have been done for the quantitative method part. In the first stage of study, the literature data has been collected through vital recourses related to the field of study particularly the local investigations and researches about the Kyrenia suburban areas. Furthermore, as the second stage of the method; case studies

have been selected according to the analyzed criteria. The method used for data in the case study was by photography technique, observation technique, drawing sketches, and interview and questionnaire technique with a host of selected urban, suburban and rural settlements.

City of Kyrenia and suburban (Lapithos and Karavas towns) and rural (Orga and Livera villages) settlements in western part were discussed/ compared as the study area. Within this context the building dynamics, intensity, green space and built-up areas have been influential in choosing this sampling. When these criteria are determined, the last 2011 population census and housing count results in Northern Cyprus and the statistical data within the reports of the Cyprus Turkish Building Contractors Association (CTBCA) 2004-2011-2016 data are taken into consideration (Akansu & Karaman, 2023). CTBCA data was carried out with the participation of all the public in the northern part of the island of Cyprus. The study area was carried out with the participation of all the people living there (as population and housing census by the state) with rural settlements and suburban settlements where dense construction takes place on the northern coastline of the island.

Transect Theory is a way in which present the changes in Kyrenia urbanism will be assessed. In addition to data collection, the drawing method has been done by sketching the existing area and evaluating based on the Transect scheme. The aim here is to reveal the development dynamics of the regions and their situation in the intensive construction process.

As a result of the drawing method, it drawn out for the districts, the height and density of the building floors have been determined and a suitable Transect scheme has been created for the study area. In accordance to get the precise data for the quantitative analysis, the interview was conducted for the study in a 12-month period starting from the last quarter of 2021 to the last quarter of 2022.

The main interview question was conducted about the research era which focuses on the rural urban, housing census and population developments after 2011. Therefore, the interview has been prepared for the users with the CTBCA knowledge for achieving the precise SWOT evaluation analysis. Hence, the SWOT analysis has been distributed to 100 users, among all of them. 75 people has been responded by regional users and the remain 25 were analyzed by data analysis based on interviews with experts in the region (non-governmental organizations and relevant institutions of the state).

The western residential areas of the northern coastline, which were chosen as the study area for SWOT analyses, were first divided into regions according to the transect theory. Tables were created and evaluations were made for each allocated region, taking into account the socio-cultural, economic and ecological values.

The assessment was carried out by SWOT analysis (strong, weak, threat and opportunities), which had formed by data analysis based on the interviews and questionnaires taken from the people in each of the selected region, non-governmental organizations and the related institutions of the state. The questions have been designed for SWOT analysis in order to describe the comparison of each region which are determined in the scope of the Transect Theory (T1 – Natural Zone, T2 – Rural Zone, T3 – Suburban Zone, T4 - General Urban Zone, T5 – Urban Center Zone and T6 – Urban Core Zone) of ecological and socio-cultural values. However, the comparative analysis of housing dynamics in the suburban and rural areas towards the west Kyrenia settlements (Karavas, Lapithos, Orga and Livera) has been explored. In this manner, the findings of the questionnaire illustrated the present state and existing issues while the statistical data supplied an insight of the status in the regions surveyed. Moreover, the selected settlement area where there are intense effects of construction in Kyrenia urban center have been perceived, evaluated and suggestions to achieve the socio-cultural, economic and ecological sustainability for the future generations have been put forward.

In all these studies, people who participated in the interviews were informed about the purpose and scope of the study.

## Result and Discussion

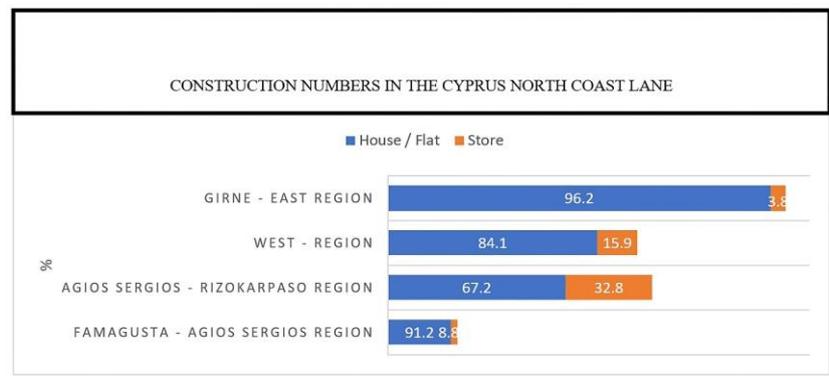
Cyprus Island carries many of the characteristics that are typical of the Mediterranean. It lies in the East Mediterranean, at the crossroad of Europe, Asia and Africa, which is located to the west of Syria, and south of Turkey, it is the third largest island in the Mediterranean Sea after Sicily and Sardinia. The geographical

characteristics of the island has defined by famous researcher Casson, (1985) as, Cyprus is 40 miles (64.37 km) on the south of Turkey peninsula, 60 miles (96.56 km) on the west of Syria and 40 miles (386.4 km) on the North of Egypt. Its area is 3572 square miles (9251, 48 square km), 670 (1735,3) of the area includes forest land (Casson, 1985).

The island of Cyprus is divided into north (Turkish Cypriot) and south (Greek Cypriot) due to political reasons today. Larnaca (Larnaka), Limassol (Limassol) and Paphos (Baf), the southern part of Nicosia (Lefkosa) district, and a small area of Famagusta (Magusa) district are located at Southern Cyprus and administered by Greek Cypriots. Nicosia is the capital and largest city. Kyrenia (Girne), Famagusta, Morphou (Guzelyurt), Trikomo (Iskele) and Nicosia district including a small portion of Larnaca district are administered by Turkish Cypriots. Coastal cities Famagusta on the east and Kyrenia on the north are additionally the main parts of North Cyprus. When the eastern coastal strip settlements were examined, it was observed that the settlement in Famagusta and the surrounding suburbs and rural areas were not as intensive as the Kyrenia. When focused on the regions as a result of the examinations made; both the demands of the local people and the foreign investors for the settlement of Kyrenia and the rapid construction in this direction attract attention.

The urban development dynamics of the Kyrenia settlement on the northern shore of Cyprus island, represents the unplanned development in line with market trends in this direction, besides the urban identity, it causes the identity of the suburbs and rural areas to change. Numerous elements influence the process of urban development. A few of these elements include the city's advantageous position, the coexistence of residents from various socioeconomic and cultural backgrounds, developing and changing of relationships, and political developments. According to the circumstances of the period, it is therefore possible to see maintained historical texture in some areas of the city and changes and development in others. However, several other zones are in a useless and idle state as they wait for renewal (Akansu & Duman, 2022; Akansu & Karaman, 2023). As Akansu and Karaman stated in 2023, the increase in construction will leave unusable building areas with concreting instead of green areas. Failure to provide the necessary conditions (mixed use) at the planning stage brings idle areas to the agenda, thus increasing the importance of regulations to be introduced in new development areas. The opening of the urban towards sub-urban and rural areas, differentiating people, natural and built environment that was destroyed with a coastline which opened to building, creates pressure in sub-urban and rural settlements. Hence, this repression of the ecological and socio-cultural characteristics of the rural settlements are caused to be exposed to danger (Farjami & Turker, 2019; Farjami & Turker, 2021). There is a discernible increase in the need for ecological sustainability across several domains, particularly in urban areas where alignment with cultural and social elements necessitates improvement rather than demolition.

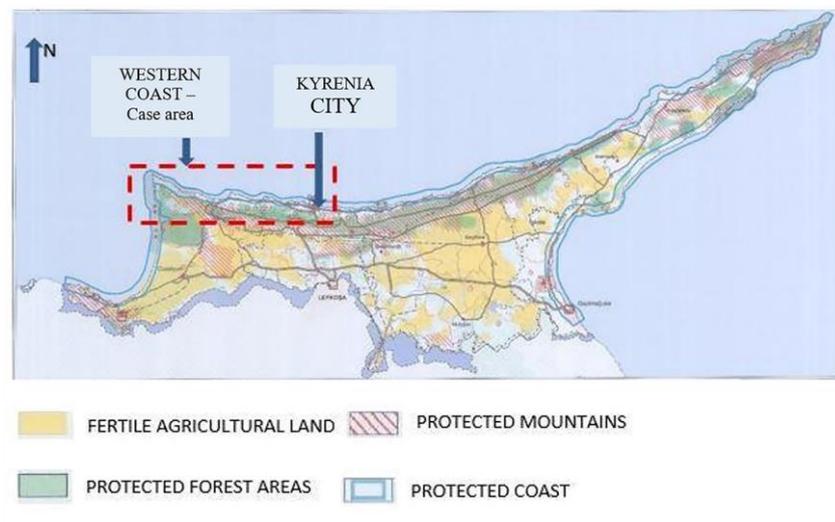
The main reason for conducting this research is the lack of preventive policies are due to the fact that the planning system is not effective and sanctioned since the urban design strategies are beyond the range of designers exploration about the city center atmosphere Abusaada, & Elshater, A. (2020). This kind of development; disrupts the ecosystem and causes the formation of urban, suburban and rural areas without identity. It is inevitable to observe that the regions that have developed without identity gradually disappear in their socio-cultural values. At this point, it is important to put this situation in place and include it in the planning studies to be done, in order to make the urban, suburban and rural areas livable. In this context, according to the examination of the eastern and western coastal settlements of the city of Kyrenia city, it can be obtained that eastern settlements have more troubles than the western settlements. In the scope of a 2011 population census result, the number of houses newly built or under construction in the suburbs and rural areas of the Kyrenia East Region is 1814 and the number of the stores is 72, and 994 houses and 188 stores in the Western settlements are obtained Figure 1.



**Figure 1.** Cyprus North coast lane building statistic.

Source: (CTBCA, 2011)

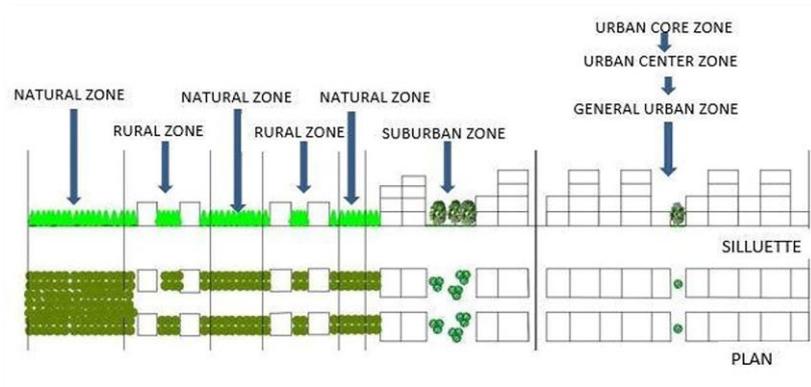
In the consideration of these data, it is observed that the most intense structuring is in Kyrenia city. However, focusing on the western settlements was deemed appropriate, as the continuation of work on the eastern settlements where the Kyrenia city was observed two times more intense, the thought of more destruction of the rural and the development of the rural areas as a continuation of the city would be troublesome for the construction of transect schemes. In this direction, work continued in Kyrenia city and the new construction sites in the western suburbs (Lapithos and Karavas) and rural settlements (Orga and Livera). In all western settlements, the existence of mountain, coastal and forest areas which show development by preservation played an active role in selecting the region Figure 2.



**Figure 2.** Workplace boundaries and biodiversity map.

Adapted by the author.

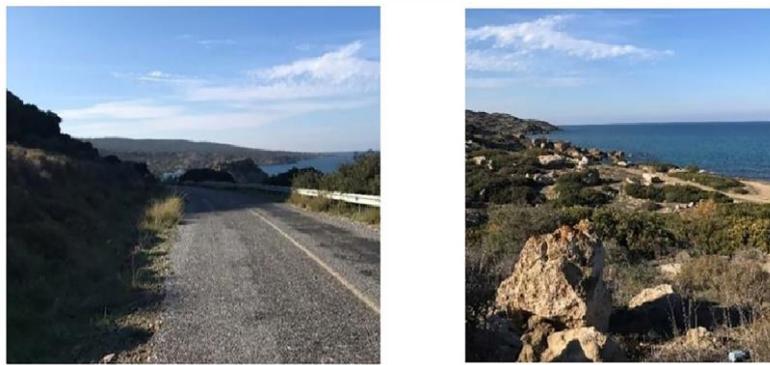
There is a significant amount of scientific literature underlining the benefits of transect theory in spatial and temporal dynamic of sprawl, reconciling environmentalism and urbanism (Yu & NG, 2007). Regardingly, this article expresses that Western settlements are determined according to the transect scheme on the designated area. In this context the regions are accepted as; the west of Livera (which also known as Sadrazamkoy), the west rural settlements - T1 Natural Zone, the natural area beyond Livera village - T2 Rural Zone, Lapithos (Which also known as Lapta) and Karavas (which also known as Alsancak) settlements - T3 Suburban Zone, Kyrenia City - T4 General Urban Zone, Kyrenia City Center - T5 Urban Center Zone and Kyrenia City and its periphery - T5 Urban Center Zone. Within this scope, a transect scheme has been established over the determined regions Figure 3.



**Figure 3.** Kyrenia Western Region- Transect Schema by author in 2018.

Under the present transect scheme for the region, the situation of Kyrenia city and the east coast lane has been established. From 1984 to 2017, when the settlement plans of the territories were examined within the scope of Google Earth data, it was observed that the density of settlement after 2003 increased. In this context, while the transect scheme of the region is being developed, the new settlements in the rural settlements and their surroundings reveal that the natural and rural zone areas are threatened today and the suburban areas are progressing to urbanization step by step and day by day. The general urban, central and core zone areas are showing an unplanned development, indicating that these areas are intermingled. The following situation arises when the design situation of urban-suburban areas and rural areas is examined from this point.

Transportation axes: Public transport is starting to be inadequate towards rural areas in connecting urban-suburban and rural settlements together. While the support given to the use of individual vehicles causes atrophy to socio-cultural sustainability relations, the ways to facilitate the transportation of the users cause problems in the development of ecological values (Farjami & Turker, 2021). The characteristic that distinguishes rural settlements from urban areas and suburban areas is that the density of tar in the material used on the road is reduced. In Figure 4, it can be seen leastwise as an advantage for the rural ecological values.



**Figure 4.** A view from the natural area between suburban and rural.  
Source: by author.

Building density and usage: There is not much difference in floor height and density from urban areas to suburban areas. Urban and suburban areas are observed to have a collective settlement and a high number of floors, both due to the increased population impact and the short distance to the city center. In the rural areas; mass structuring is observed and build and sell architecture consisting of one-storey, two storey and triplex residences of similar material and quality is composed of holiday residences of people with different cultures Figure 5. As it has been discussed about causes the combination of different cultures, the disappearance of old neighborhood relations, and the forgetting of customs. In addition to these findings,

the degradation of the topography, the material effects that are used and the intensity of the construction are adversely affecting flora and fauna habitats within the climatic change.



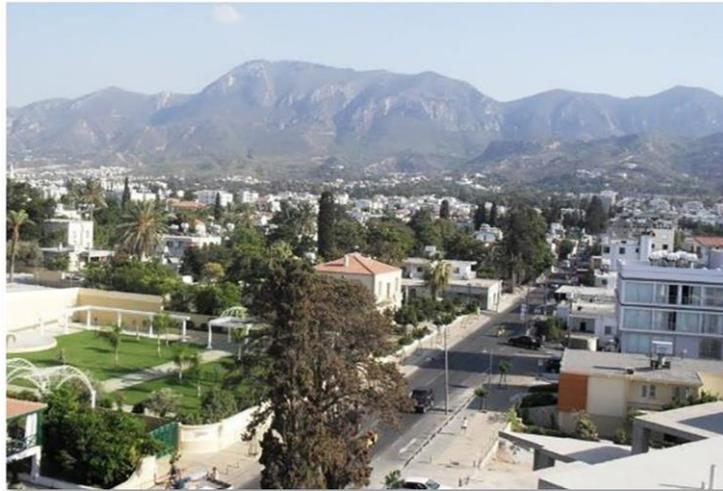
**Figure 5.** Density of collective settlement in rural area and building masses.  
Source: by author.

Frontage and mass features: It have been observed that in the newly designed buildings around the traditional residential areas of urban-suburban and rural areas, the constructions are built similar to each other without considering the user's need with the effects of the built and sell architecture. This situation has caused the observation of buildings in square and rectangular forms where reinforced concrete structures reflect single-sided fronts Figure 6. In particular, this distressing situation in the building settlements does not offer the opportunity to co-develop open space and the ecological environment. In addition, it makes living spaces the only units to be used for compulsory needs.



**Figure 6.** Mass reconstruction in suburban area and appearance from similar fronts.  
Source: by author.

Lighting elements of public spaces, parking spaces, pavements, street silhouettes: Publics that are located at interrelated walk-able distances in public space designs are rarely observed. In addition to that in urban and suburban areas, it is often observed that there are insufficient parking spaces, street-side commercial spaces, street silhouettes made up of unsuitable buildings, and insufficient lighting elements and sidewalks Figure 7.



**Figure 7.** General view from Kyrenia city center.  
Source: by author.

Green areas and landscaping elements: it cannot be said that many landscaping elements have been designed except parks which are considered as green areas. The information obtained as a result of these analyzes reveals the situation of the Kyrenia city and the western settlements, which develop in accordance with the planning studies. The build-and-sell architecture, the collective building sites and the needs of the user are ignored by the inadequacy of planning studies, and the concept of urbanism and architecture are designed by only considering today. In addition, the effects of the increase in urbanization due to population growth have also been reflected in suburban and rural settlement areas over time. With the effect of this reflection, it will be not right to evaluate the urban area separately from the rural and suburban settlements.

In this context, it is inevitable to use the Transect theory which evaluates urban, suburban and rural areas together. In the light of these determinations of the Transect theory, the ecological and socio-cultural sustainability values in the regions were revealed by the aforementioned SWOT analysis results. The SWOT analysis was made over the defined regions and assessed for the threats and opportunities beside the strong side and weaknesses of the regions. First of all, evaluation of Transect theory (T1- natural zone) in natural area beyond Livera village Table 1.

T1 Natural Zone (Natural area beyond Livera village): This zone covers areas for wildlife and its habitat but excludes places that are unsuitable for habitation because of their topography, hydrology, and vegetation. However, due to necessity, these zones are being opened for construction in the northern villages of west Kyrenia, putting their topography, hydrology, and biological variety in danger. Natural spaces are gradually losing their ecological qualities as these areas, which were identified as the boundaries of forest areas, are incorporated into residential borders. Additionally, it is noted that as more green space is developed in rural areas, these areas are starting to lose their natural features. (Akansu & Karaman, 2023).

**Table 1.**  
*T1 Natural Zone - Orga and Livera Village*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-Cultural Value
T1 - Natural Zone – (Natural area beyond Livera village)	Strong	Topography, geological features, natural vegetation and hosting habitats of endemic species	The existence of socio-cultural values in the settlement around the region
	Weak	Inadequate decision mechanisms for ecological protection of the zone	It cannot be said to be weak because it is not open to building.
	Threat	Slowly opening up of the surroundings to the structuring areas	Inadequate decision-making mechanism to prevent the opening up of the region to the structuring
	Opportunities	Not opening up of the region to any structuring	Not opening up of the region to structuring

Source: by author

Overall these findings are describing that, when natural areas are assessed, topography provides important ecological values that are not opened to construction by the presence of mountain and marine ecosystems, which are favorable for geological features, natural vegetation and endemic species. By not being open to building, it can be explained that people integrate into their natural habitat, breathe fresh air and embrace visitors from different regions. In the continuation of this, evaluation of Transect theory (T2 – Rural Zone) in Orga and Livera village Table 2.

T2-Rural Zone (Orga and Livera village): This zone includes cultivated, open, and sparsely populated areas. These consist of agricultural fields, forests pastures, and irrigation zones. The northern coastline of Kyrenia today has a number of rural settlement options, including fields, agricultural land, and forests, that can be developed. They are now incorporated into built-to-sell architecture. (Akansu & Karaman, 2023).

**Table 2.**  
*T2 Rural Zone - Orga and Livera Village*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Sosyo-cultural Value
T2 - Rural Zone-(Orga and Livera)	Strong	Sea and mountain ecosystem reserving of the region	Protection of socio-cultural values
	Weak	Inadequate planning	Mixing different cultures into new settlement areas
	Threat	The presence of residential design which were built with unsuitable methods and materials for rural settlement	The curiosity of tradition, custom and socio-cultural values of people in new construction areas
	Opportunities	Decrease in construction due to housing that cannot find buyers in recent year	The concentration of new structuring in a specific area

Source: by author.

It is observed that, in rural areas, animal husbandry is being done rather than agriculture. However, it is observed that people who are living in traditional residential areas grow their own vegetables. The tradition, custom and cultural similarity of the people in the region strengthens the neighborhood relations. However, besides all these developments, it is observed that the contractors, who take the advantage of opportunities in natural values in the Orga and Livera village settlement and the deficiencies arising from planning, will gradually destroy the natural life and cultural values by the mass housing project which they built for region during urban expansion process. At this point, the evaluation of Transect theory (T3 –Suburban Zone) in Laphitos and Karavas settlements Table 3.

T3-Sub Urban Zone (Laphitos and Karavas Settlements): This zone is distinct from low-density suburban areas despite sharing similarities with them in that it is host to a wide variety of occupational disciplines. The vegetation there is still native. The blocks and the roadways don't fit with the natural layout of the settlement. Moreover, the chunks are remarkably broad. Notable for their social accommodations and apartments are the residential districts that grow out from the high-density city and suburban towns along the north coast of West Kyrenia. There are settlements where infrastructure improvements that are incompatible with the natural structure are observed, and its greenery is steadily disappearing. (Akansu & Karaman, 2023).

**Table 3.**  
*T3 Suburban Zone - Laphitos and Karavas Settlements*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-cultural Value
T3 - Suburban Zone-(Laphitos and Karavas Settlements)	Strong	Featuring settlement characteristics in the skirts of Kyrenia mountains and the seaside	The protection of neighbourhood relations and socio-cultural values in traditional residential areas existing in the regions.
	Weak	The number of floors existing in urban areas is also being observed in suburban areas	Users in multi-storey, residential areas do not know each other

	Threat	The presence of intense and mass housing projects with excessive floors	Living together with people of different socio-cultural values
	Opportunities	Presence of green areas in mass housing construction	The existence of activities organized for the continuity of socio-cultural values within the regions

Source: by author.

The Lapithos and Karavas settlements are developing horizontally and vertically, as the city centers are inadequate for the needs of the population. In the settlements mass housing, collective multi-story apartment blocks are observed. Green areas are decreasing day by day, and in parallel with the ecological values existing in the region are observed only in unstructured parts of mountainsides. The structuring starts from the center of the settlements and extends to the seashores and the mountainsides. In this way, the construction leads to its disappearance in socio-cultural sustainability values. It is observed that, the presence of ongoing mass settlements presently and the wasteland projects that are waiting for not to be wronged in any planning study for the future. In the continuation of this, evaluation of Transect theory (T4 – General Urban Zone) in Kyrenia City (Table 4), T4-General Urban Zone (Kyrenia City): In comparison to the other zones listed, this one is denser and mostly consists of housing settlements. It features a variety of mixed-use residential architectural orders, including terrace and detached homes. The landscape is variable, and the streets are designated by medium-sized block islands. Traditional Kyrenia urban neighborhoods were often made up of detached or twin homes. Today, though, this is coupled with a lot of apartment buildings and commercial structures. Besides, all around the city, the streets are the same. (Akansu & Karaman, 2023).

**Table 4.**  
*T4 General Urban Zone - Kyrenia City*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-Cultural Value
T4- General Urban Zone– (Kyrenia City)	Strong	Featuring of mountain and marine ecosystem together	The commitment of the people in the new housing areas to socio-cultural values
	Weak	Developing with autonomous decisions without a city development plan	The existence of planning that allows people from different cultures to live together
	Threat	A constant increase of build and sale architecture with dense and high number of floors, where green areas are insufficient	Living people usually composed of working people
	Opportunities	The existence of preservable ecological values in the scope of planning studies	The existence of activities for transferring the socio-cultural values to the future.

Source: by author.

It can be said that Kyrenia city developed by destroying the coastline within autonomous decisions, without considering the green areas and the city development plan. It is observed that there are traffic problems in the city right now because the multi - storied structures were constructed without considering the road arrangements. Without considering the population density in the settlements, it has not developed any qualitative development that gives opportunity to expand the roads. At this point, evaluation of Transect theory (T5 – Urban Center Zone) in Kyrenia City center “Table 5”. T5-Urban Centre Zone (Kyrenia City Centre): The center of this area is made up of retail stores, offices, terrace homes, and apartments that are connected to the main routes. It features trees and spacious pavements on its tiny streets. Apartments serve as the primary living quarters in the Kyrenia city center, which also has houses at a considerably lower density. Commercial buildings are highly concentrated there. Although it is impossible to specify how a mixed-use neighborhood containing both residential and business spaces is used, it is clear that the commercial locations are densely populated. Additionally, the streets with pavements are not all that wide, with the exception of the zone's core. There weren't enough attempts to make the city center green. (Akansu & Karaman, 2023).

**Table 5.**  
*T5 Urban Center Zone – Kyrenia City Center*

Evaluation of SWOT Analysis & Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-Cultural Value
T5 - Urban Center Zone-(Kyrenia city center)	Strong	The existence of endemic plants in the construction areas that are built with traditional materials	The preservation of historic buildings and traditional houses
	Weak	The prevention of green areas forming due to dense structuring	The observation of lost neighborhood values in traditionally residential areas and surroundings of the region
	Threat	The absence of open green areas out of parking and built environment	Incorporating the different cultures together
	Opportunities	To be in seashore location	The existence of traditional residential areas and the presence of people past to present

Source: by author.

The Kyrenia city center was an ancient tradition. However, it is observed that in recent years, the hotel and apartment blocks, which were built within historical buildings, are in competition with the historical buildings. Leaving the wastes of the hotel buildings to the sea negatively affects the marine ecosystem. It is also observed that traditional residential buildings in the region have lost socio-cultural values today. To sum up, evaluation of Transect theory (T6 – Urban Core Zone) in Kyrenia city and surrounding “Table 6”. T6-Urban Core Zone (Kyrenia and surrounding): This is where the city's center is. In this area, which has little to no natural vegetation, are found the city's tallest building as well as distinctive and different kinds of public buildings. In certain sections of this zone, a significant concentration of tall apartments with ground floors intended for commercial use coexist with detached houses. (Akansu & Karaman, 2023).

**Table 6.**  
*T6 Urban Core Zone - Kyrenia City and Surrounding*

Evaluation of SWOT Analysis& Transect Theory - Kyrenia and Western settlements			
Transect Zone	SWOT Analysis	Ecological Value	Socio-cultural Value
T6 - Urban Core Zone-(Kyrenia city and Surrounding)	Strong	To be a settlement with mountain and marine ecosystem	The existence of socio-cultural values in the city
	Weak	Decreasing of ecological values due to recently increasing structuring area	People who live in very high-rise apartment blocks do not know each other
	Threat	Developing with built and sell architecture without considering green areas	Observation of loss of socio-cultural values
	Opportunities	The compulsory green area request of urban planning department in projects	Commitment to socio-cultural values

Source: by author.

It is observed that Kyrenia city has lost its ecological and socio-cultural sustainability values due to the increasing population and the profit aim of the contracting companies. It is observed that the marine and mountain ecosystem is facing the danger of extinction due to urban expansion towards its perimeters.

It is observed that the silhouette, which appeared horizontally and vertically at the center of the city of Kyrenia, is due to the inadequacy of planning studies. In this context we can say, it has emerged that urban dynamics are designed without considering horizontal and vertical green areas. If the city is inadequate, parts designed for the city have developed towards suburban and rural areas. It is revealed that this situation causes the loss of ecological and socio-cultural sustainability values.

## Conclusion

In planning studies, it is envisaged that the development plans to be prepared for the arrangements made from the city to the countryside will be considered in the context of transect theory. If we come to conclusion we can mention that, when world examples are examined, the transect theory has an important role in urban, suburban and rural area planning of large settlements. However, it has been shown that the surface area is also a theory that can be used in the planning of the small island countries, especially in protecting the social values besides ecological diversity along the coastal shore and avoiding the irregular settlements brought by the urban spread. In addition to all transportation axes, building densities and usage in island, the qualification for each series and the suitable settlement for design characteristics of frontages,

masses, public spaces, intersections, street silhouettes, lighting elements, parking spaces, pavements, green areas and landscaping items have place in handing them down the next generations. In the settlements that will be designed in this context, it is necessary to integrate all these elements into the planning studies on a regular basis. The planning studies in this concept, are expected to help the following issues;

- The protection of ecological and socio-cultural values,
- The formation of habitable settlements for future generations to use,
- The positioning of public, residential and commercial spaces which are easy to use and in walk able distance,
- The protection of urban-suburban and rural settlements' specific characteristics.

Besides these four issues, while planning studies are being carried out; it is expected that the decision makers of this study make contributions to city and regional planners, architects, ecologists and environmental scientists. It should be remembered that the design of the urban-rural areas and the suburbs are related to one another and that independent consideration will bring about the problems as well.

Acknowledgement This research didn't receive any specific grant from funding agencies in the public commercial or not-for-profit sectors.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.12>

How to Cite:

Shumak, I., Batan, Y., Kravchenko, S., Hedulianov, V., & Bysaha, Y. (2024). Representative democracy under martial law. *Amazonia Investiga*, 13(77), 159-169. <https://doi.org/10.34069/AI/2024.77.05.12>

## Representative democracy under martial law

### Представницька демократія в умовах воєнного стану

Received: April 10, 2024

Accepted: May 30, 2024

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#### Abstract

The research of representative democracy under martial law is extremely relevant, especially in contemporary times when many countries face military conflicts and threats to national security. Notably, the military aggression of the Russian Federation on the territory of Ukraine has significantly altered the agenda in Ukraine regarding elections. In wartime, there arises a need for swift decision-making, which can lead to temporary limitations on democratic procedures. Analyzing this issue will help find a balance between effective crisis management and preserving the core of the democratic order. The purpose of this study is to examine the functioning of representative democracy under martial law, particularly how democratic institutions and processes are preserved and adapted during a crisis period. The research methodology includes empirical, comparative, and logical methods. The study examines the functioning of representative

#### Анотація

Дослідження представницької демократії в умовах воєнного стану є надзвичайно актуальним, особливо в сучасних реаліях, коли багато країн стикаються з воєнними конфліктами та загрозами національній безпеці. Зокрема, військова агресія російської федерації на території України суттєво змінила порядок денний в Україні щодо виборів. В умовах війни постає необхідність оперативного прийняття рішень, що може призводити до тимчасового обмеження демократичних процедур. Аналіз цього питання допоможе знайти баланс між ефективним управлінням під час кризи та збереженням основ демократичного ладу. Метою дослідження є вивчення функціонування представницької демократії в умовах воєнного стану, зокрема, аналіз того, як зберігаються і адаптуються демократичні інститути та процеси у кризовий період.

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democracy under martial law. It explores the peculiarities of the operation of democratic institutions and government bodies during wartime, including the role of parliament, the president, and the judiciary. Changes in legislation aimed at ensuring state security and stability, as well as mechanisms for protecting citizens' rights and freedoms, are analyzed. Special attention is paid to balancing national security and adherence to democratic principles. Potential risks to democracy under prolonged martial law and possible ways to minimize them are also considered. Conclusions are drawn that, despite existing restrictions, it is essential to ensure these restrictions are proportional and temporary, while maintaining oversight by civil society.

**Keywords:** war, martial law, democracy, representative democracy, governance, legislation, human rights, freedom, elections, parliament, government.

Методологію дослідження складають такі методи, як: емпіричний, порівняльний та логічні методи. У результаті дослідження, розглянуто функціонування представницької демократії в умовах воєнного стану. Вивчено особливості роботи демократичних інститутів та органів влади під час війни, зокрема, роль парламенту, президента та судової системи. Проаналізовано зміни у законодавстві, спрямовані на забезпечення безпеки та стабільності держави, а також механізми захисту прав і свобод громадян. Окрема увага приділяється балансу між забезпеченням національної безпеки і дотриманням демократичних принципів. Розглядаються також потенційні ризики для демократії в умовах тривалого воєнного стану і можливі шляхи їхньої мінімізації. Зроблено висновки, що в умовах існування обмежень, важливо забезпечити, щоб ці обмеження були пропорційними та тимчасовими, а також щоб зберігався контроль за владою з боку громадянського суспільства.

**Ключові слова:** війна, воєнний стан, демократія, представницька демократія, управління, законодавство, права людини, свобода, вибори, парламент, уряд.

## Introduction

Representative democracy is one of the primary forms of governance that ensures citizen participation in state decision-making through elected representatives. This system provides stability, legitimacy, and accountability of power. However, under martial law, when a country faces extraordinary challenges and threats, questions arise regarding the functioning of representative democracy. During martial law, certain rights and freedoms of citizens may be restricted, decision-making procedures altered, and special powers granted to the executive branch.

In this context, several critical questions arise:

- How to maintain the legitimacy of the government and parliament when democratic institutions are operating under limited conditions?
- How to balance the need to restrict certain rights and freedoms to ensure security with the demands of a democratic state?
- What is the role of parliament in decision-making during martial law, and how to preserve its effectiveness?
- How to ensure oversight of the executive branch's actions, which may receive expanded powers?
- How to involve citizens in decision-making when traditional mechanisms of representative democracy might be restricted?

These questions are crucial for understanding the challenges faced by representative democracy under martial law. Researching this topic allows for identifying ways to ensure state stability and uphold democratic principles even during the most challenging periods of national history.

The object of the study is representative democracy under martial law, i.e., the analysis of the governance system and political processes in a country experiencing a military conflict or martial law.

The subject of the study is the interaction between representative democracy and military conflict, including the analysis of the impact of military actions on democratic institutions, decision-making processes, and civil society. The study also examines strategies for preserving democratic values and institutions during a crisis, as well as the influence of international actors on democratic processes in a country under martial law.

Therefore, the research aims to identify the main challenges and risks faced by democratic systems during war and to find effective mechanisms for supporting and protecting democratic principles and citizens' rights. The main tasks include:

- Analyzing changes in legislation and policy aimed at ensuring state security and stability during martial law.
- Investigating the role of key institutions of representative democracy, such as the parliament, president, and judiciary, in wartime.
- Assessing the balance between national security and adherence to democratic principles.

The article is consisted of several section:

#### Theoretical Framework or Literature Review

This section sets the stage by discussing the importance and relevance of studying representative democracy under martial law. It highlights contemporary issues such as military conflicts and threats to national security, with a specific focus on the impact of the Russian Federation's aggression in Ukraine. The need for swift decision-making during wartime and its implications for democratic procedures are addressed. This section reviews existing literature and theoretical perspectives on maintaining democratic institutions and processes in crisis situations, aiming to find a balance between effective crisis management and the preservation of democratic values.

#### Methodology

This section details the research methodology used in the study. It describes the empirical, comparative, and logical methods employed to examine the functioning of representative democracy under martial law. The methodological approach includes analyzing legislative changes, the roles of various democratic institutions, and mechanisms for protecting citizens' rights and freedoms during wartime. The section outlines how data was collected and analyzed to understand the operation of government bodies and the impact of martial law on democratic processes.

#### Results and Discussion

In this section, the findings of the study are presented and analyzed. It explores the peculiarities of how democratic institutions, such as the parliament, president, and judiciary, function during wartime. Legislative changes aimed at ensuring state security and stability are examined, along with their impact on citizens' rights and freedoms. The discussion focuses on balancing national security needs with adherence to democratic principles. It identifies potential risks to democracy under prolonged martial law and suggests ways to minimize these risks. The section provides an in-depth analysis of the challenges and adaptations of democratic processes in crisis periods.

#### Conclusion

The final section summarizes the key findings and conclusions of the study. It emphasizes the importance of ensuring that any restrictions on democratic procedures during martial law are proportional and temporary. The need for maintaining oversight by civil society is underscored. The conclusion reiterates the essential balance between effective crisis management and the preservation of democratic values, stressing that the core democratic order should be upheld even in times of national security threats.

## Theoretical Framework or Literature Review

Firstly, Afanasyeva (2023) focused on the issues surrounding elections in Ukraine that will take place after the cessation or cancellation of martial law. The restoration of democratic institutions post-war presents Ukraine with several key issues that need to be discussed and resolved now, including voter locations, candidates and political parties, electoral commissions at various levels, election timing, funding, judicial protection, electoral legislation, and European integration aspects. The researcher concluded that war will have significant institutional, logistical, and legislative impacts on elections, emphasizing the importance of preparing for future challenges.

Secondly, Andrushko (2023) addressed the challenges of conducting elections during martial law. The author, with whom we fully agree, argued that holding elections in occupied territories before disarmament, demilitarization, border control restoration, and ensuring legislative and institutional conditions will not resolve the conflict, and the election results will not be recognized by conflict participants. Conducting elections during armed conflict also poses numerous risks and issues that violate the principles of universal and equal suffrage, potentially leading to elections being deemed illegitimate. Experience from other countries that had armed conflicts indicates that elections are possible only 2-3 years after the end of hostilities.

Moreover, Mykhailov (2022) examined ways to realize the people's right to power under martial law. The author noted that the principle of popular sovereignty can become a societal, political, and legal reality only if there is a wide range of direct democracy forms through which the people can express their will in daily life. Protecting the state involves not only defending national but also popular sovereignty. Since the need for citizens to express their will and shape authoritative decisions is constant, popular sovereignty cannot be limited regardless of the specific legal regime. Special guarantees of security and stability introduced during martial law are unconditional, but any restrictions on citizens' participation in various forms of direct democracy must be balanced by implementing direct democracy mechanisms that do not contradict these guarantees and do not involve defense matters.

The most effective way to ensure the practical realization of popular sovereignty, and thus the people's right to direct power, is through mechanisms of direct electronic democracy. The use of information and communication technologies allows for safe decision-making, encouraging their adoption or participation. However, we note that the use of IT technologies can pose many risks under conditions of cyberattacks, internet access issues, and power outages.

Additionally, Chyrkin and Kyrychenko (2024) discussed democracy during wartime, noting that Russia's military aggression against Ukraine revealed an interesting feature: the Ukrainian people demonstrated a high level of legal consciousness. Understanding the risks of losing statehood, the nation entered into a new unwritten social contract with the government, based on unity and joint struggle against the enemy. Even under military aggression, the people maintain and ensure the fundamental principles of the constitutional order.

Buga (2023) explored the issue of public consultations under martial law. During wartime, public trust in government decisions remains critically important, even more so than in peacetime. Democracy should support high levels of trust in government structures. Although martial law may lead to a ban on elections and referendums, other democratic methods of influencing the government, such as public consultations, expertise, and petitions, exist. It is important to develop the legal institution of public consultations and incorporate it into decision-making processes by authorities. Although some aspects of this process are not yet perfectly regulated by law, the results of public consultations are advisory and considered in decision-making. Developing this institution can strengthen democracy in the country and increase public trust in government structures.

What is more, Szostek and Toremark (2022) noted that the future of democracy in Ukraine depends on the war's outcome and efforts to build strong independent institutions. Currently, parts of Ukraine are under occupation by the Russian Federation, a closed and repressive autocracy. The prospects for democracy in the occupied regions, especially in the east, south, and Crimea, depend on whether Ukraine can expel Russian occupation forces. Ukraine needs to restore control over its borders to become a full-fledged

democracy. If Ukraine can protect its borders, regain control over its territory, and secure future security guarantees, the prospects will be positive. Several key factors contribute to this.

Reilly (2010) discussed post-conflict elections, focusing on institutional challenges such as the absence of effective state institutions to organize and conduct elections, inadequate legal frameworks, infrastructure destruction including polling stations and transport routes, security issues for voters, election workers, and observers, low public trust in the election process due to prior conflict, the possibility of elections entrenching one side's power, societal divisions due to ethnic, religious, or political conflicts, and the many limitations and risks of post-conflict elections.

Vodiannikov (2023) examined the challenges of holding elections during the war in Ukraine. The researcher noted that the motives of foreign allies urging Ukraine to conduct elections even under extreme conditions are understandable: they seek to prevent Ukraine from backsliding from its democratic path. However, the risks of holding elections in such conditions are also evident: elections under extreme conditions are likely to "cement" the current power configuration for the next five years and simultaneously undermine the societal legitimacy of democratic institutions elected during wartime, creating a favorable environment for retreating from democracy. Predicting the results of possible elections during the war is speculative. According to the author, there is no convincing precedent or case where a democracy at war, with significant parts of its territory occupied or engaged in active combat, managed to conduct free and fair elections. Wartime conditions affect electoral choices and, even more so, the dynamics of the election campaign and the fairness of the elections. Therefore, even if the current parliamentary majority lacks broad public support and would likely lose in peacetime, wartime conditions might allow it to either strengthen its parliamentary representation or maintain the status quo for the next parliamentary term. The author concludes, a position we fully agree with, that elections during wartime can only nominally confirm the country's democratic development.

Sadurski (2019, 2022) explored the collapse of Poland's constitutional order and the transition to an authoritarian regime. The main ideas from this section can be summarized as follows: analyzing the differences between illiberal democracy and populist authoritarianism, highlighting that Poland is transitioning from the former to the latter (the author argues that illiberal democracy is a cover for systematically undermining democratic institutions and norms, leading to authoritarianism); populism plays a key role in this process, creating the illusion of popular sovereignty but actually concentrating power in the hands of a narrow group of politicians; attacks on the rule of law are observed, including changes in the judicial system and restrictions on judicial independence; the author expresses concern about the future of democracy in Poland, emphasizing the need to support democratic institutions and principles.

Bugaric (2019) drew attention to the fragility and vulnerability of democracy when confronted with resolute authoritarian regimes seeking to undermine democratic foundations, transforming them into various forms of "competitive authoritarianism." The current surge in populism indicates that the rule of law and liberal democracy are under great threat when their fundamental principles no longer enjoy broad democratic support. Ultimately, the greatest hope for protecting liberal democracy lies in democratic political parties, civil society organizations, and a strong core of democracy-committed individuals.

In conclusion, representative democracy under martial law faces numerous challenges and limitations yet remains an essential mechanism for ensuring legitimacy and governance. Research trends in this field include examining the impact of martial law on the functioning of representative democracy institutions and developing strategies to preserve democratic values and processes during wartime. Studies also focus on developing and improving mechanisms to ensure citizen participation in decision-making, even under difficult martial law conditions, such as public consultations, discussions, and other forms of public influence. Additionally, scholarly research analyzes historical and contemporary examples of implementing representative democracy in conflict conditions to understand their impact on societal stability and peaceful transitions to democratic institutions post-conflict.

## Methodology

Representative democracy under martial law is a complex research object that requires the application of various scientific research methods.

The following methods will be used to study the functioning of representative democracy under martial law: empirical, comparative, and logical methods. These methods provide a comprehensive and in-depth analysis of the topic, covering various aspects and levels of research.

**Empirical Method:** This involves collecting and analyzing real data and facts related to the functioning of representative democracy during martial law. This method includes:

- Data Collection: Analysis of official documents, laws, decrees, resolutions, as well as reports from governmental and non-governmental organizations that regulate and describe the peculiarities of martial law and the activities of democratic institutions during this period.
- Statistical Data Analysis: Collection and analysis of statistical data on changes in political activity, electoral processes, and violations related to restrictions on citizens' rights and freedoms during martial law.

**Comparative Method:** This allows for evaluating the specifics and effectiveness of representative democracy in different countries and conditions of martial law. This method includes:

- Legislative Comparison: Analysis of legislative acts from different countries regulating martial law to identify common features and differences in approaches to ensuring democratic processes.
- Historical Examples Comparison: Studying historical examples of martial law implementation in different countries and analyzing the consequences for representative democracy.
- International Experience Analysis: Researching practices and recommendations of international organizations, such as the UN, European Union, and others, regarding the functioning of democracy during emergencies.

**Logical Methods:** These include analysis, synthesis, induction, and deduction, which allow for systematizing knowledge and making substantiated conclusions. These methods include:

- Analysis: Decomposing the studied phenomenon into components for a deeper understanding of specific aspects of representative democracy functioning during martial law.
- Synthesis: Combining separate elements of the study into a single concept, allowing for an overall picture and systemic interconnections.
- Induction: Deriving general patterns based on the analysis of individual cases and empirical data.
- Deduction: Formulating specific hypotheses and conclusions based on general principles and theories related to democracy and martial law.

Using these methods in combination allowed for conducting a comprehensive and deep study of representative democracy under martial law, identifying its peculiarities, problems, and possible ways of improvement.

## Results and Discussion

### Limitations of the Study

**Lack of Access to Classified Information:** The study may be limited by the inability to access classified or sensitive information related to national security and government decision-making processes during martial law. This could result in an incomplete understanding of the full impact of martial law on democratic institutions and practices.

**Difficulty in Assessing Long-Term Impact:** Assessing the long-term impact of martial law on democracy is challenging due to the ongoing nature of the conflict and the uncertainty about when and how martial law will be lifted. The study may not be able to fully predict or evaluate the long-term consequences for democratic processes and institutions.

**Reliance on Theoretical and Comparative Analysis:** The research relies heavily on theoretical frameworks and comparative analysis, which may not capture the nuanced and dynamic realities on the ground. This could limit the applicability of findings to the specific context of Ukraine.

**Potential Bias in Sources and Data:** The study may be influenced by the availability and reliability of sources, especially given the context of an ongoing conflict. Information from government and non-governmental organizations may carry biases that affect the study's conclusions.

**Challenges in Measuring Public Opinion:** Accurately gauging public opinion and the level of public trust in government decisions during wartime is difficult. The stress and instability caused by the conflict may affect the reliability of survey data and other measures of public sentiment.

**Impact of Displacement and Migration:** The large-scale displacement and migration of Ukrainian citizens due to the conflict complicate the assessment of democratic participation and representation. The study may struggle to account for the political and social dynamics of displaced populations.

**Legal and Constitutional Constraints:** The study must navigate complex legal and constitutional constraints that affect democratic procedures during martial law. These constraints may limit the scope of potential reforms and adaptations to democratic practices.

**Security Concerns:** The ongoing security situation poses practical challenges for conducting research and gathering data. This could result in gaps in information and hinder a comprehensive analysis of the impact of martial law on democracy.

The value of democracy for the Ukrainian people is difficult to overestimate, as citizens have repeatedly affirmed their right to participate in socio-political life in various ways. Even under the legal regime of martial law, democratic values remain fundamental. The use of democratic methods in the management of public affairs ensures the necessary level of public trust in the government, which is crucial for achieving victory in the war. In addition, only under the conditions of a democratic system is there a possibility of building a strong economy that can provide an adequate standard of living for all members of society. The current economic development trends in Ukraine are characterized by the instability of the activity figures, budget deficits, low efficiency of the economic, political, and social reforms, rise in the level of the unprofitability of the enterprises, a high level of corruption, etc. (Kolomoiets, Tsybulnyk, Moroz, Prymachenko, & Khashev, 2021). The war of annihilation waged by the Russian Federation against Ukraine significantly exacerbates already existing economic problems. Thus, the preservation of democratic approaches in the management of state affairs, even under conditions of war and a difficult economic situation, is extremely important.

The main goal of democracy is to ensure and guarantee a high level of public trust in government decisions. At the same time, the level of public support for the government is a key component of the state's resilience to external and internal threats. Therefore, during wartime, the task of democracy does not lose its importance. On the contrary, a high level of public support for government decisions is a guarantee of achieving victory. The war may last for years, or possibly decades. Therefore, the issue of conducting various democratic procedures under the legal regime of martial law, especially over time, despite the legislator's opinion, is extremely important.

The principle of popular sovereignty is enshrined in Article 5 of the Constitution of Ukraine (Law No. 254к/96-VR, 1996). The academic community has developed a stable tripartite approach to its understanding: the people are the bearers of sovereignty and the only source of power in Ukraine; the people exercise power directly, as well as through state authorities and local self-government bodies; the people are guaranteed the exclusive right to decide the most important issues of state and public life (Sadurski, 2019). The power of the people means not the power of an abstract community, but the involvement of each citizen in its exercise.

Direct exercise of power is one of the main competencies of the Ukrainian people. The Law of Ukraine "On the Legal Regime of Martial Law" defines martial law as a special legal regime introduced in the event of armed aggression, threat of attack, or danger to the state independence and territorial integrity of Ukraine. Typical forms of direct democracy, such as elections and referendums, can be implemented only under the ordinary legal regime. Special legislative restrictions provided for in Article 19 of this Law make it impossible to hold elections and referendums during martial law. An additional prohibition on holding elections is contained in the Constitution, which stipulates that the term of office of the Verkhovna Rada of

Ukraine is extended until the day of the first meeting of the first session of the Verkhovna Rada of Ukraine elected after the termination of martial law or a state of emergency (Law No. 389-VIII, 2015, Decree No. 64/2022, 2022, Law No. 2102-IX, 2022).

Therefore, the prohibition on holding elections during martial law is enshrined at the legislative level. The Constitution of Ukraine is also unequivocal on this issue: in the event of the introduction of martial law or a state of emergency, the fourth part of Article 83 provides for the extension of the powers of parliament until the day of the first meeting of the first session of the Verkhovna Rada of Ukraine elected after the end of martial law or a state of emergency. This wording does not allow for ambiguity – the parliament must be elected only after the cancellation of martial law. Therefore, it can be argued that holding parliamentary elections during martial law is unconstitutional (Law No. 254к/96-VR, 1996).

As Vodiannikov (2023) notes, although the Constitution cannot be amended during martial law, subordinate acts may undergo changes. Therefore, if amendments are made to the electoral legislation allowing elections during wartime, these changes will be valid until the Constitutional Court of Ukraine declares them unconstitutional (presumption of constitutionality). Therefore, it is not possible to exclude the possibility of adopting such a law, especially under increased international pressure. However, there remains the question of whether free and fair elections can be held under the extreme conditions of war, and whether the will of the people will truly be free, as required by Article 71 of the Constitution.

Overall, the establishment of special restrictions is since during the operation of a special legal regime, the temporary restriction of constitutional rights and freedoms of individuals and citizens is allowed. At the same time, the relevant state authorities, military command, military administrations, and local self-government bodies are granted powers necessary to prevent threats, repel armed aggression, guarantee national security, and eliminate the danger to the state independence and territorial integrity of Ukraine. Among the numerous restrictions and management measures, there are no direct or even indirect references to the possibility of limiting the principle of popular sovereignty, as understood in Article 5 of the Constitution of Ukraine. In fact, all elements of this principle cannot be objects of interference (Opora, 2024). This fully confirms the need to find a balance between the temporary restriction of the possibility of direct democracy and ensuring the continuous exercise of state power by the people, who are its only source and bearers of sovereignty.

The Constitution of Ukraine enshrines the principle of a democratic state, according to which all power in the state belongs to the people. This principle goes beyond mere elections and directly influences the principle of free elections (Law No. 254к/96-VR, 1996). Elections ensure democratic legitimacy only when they are free and fair. This means that not only must the voting process itself be free from coercion and unlawful pressure, but voters' right to vote must not be restricted or canceled, and the entire electoral process must be fair from start to finish. This is achieved through numerous constitutional guarantees of freedom and equality, as well as institutional and procedural mechanisms (European Commission, 2023).

The dilemma of holding elections during wartime lies in choosing between two options:

1. Conducting elections that do not meet constitutional standards, or
2. Suspending the electoral process until the end of the war.

Another aspect of the principle of a democratic state must be taken into account: democracy means the self-determination of the people. Self-determination is based on the idea of free, rational, and informed choice. For democratic self-determination to be full-fledged, certain prerequisites are necessary, such as continuous free discussion among various social forces, interests, and ideas (Office of the Council of Europe in Ukraine, 2023).

During World War II, elections in Britain were suspended. At the end of the war, Churchill's support among the British reached 83%. However, his party lost the post-war elections in 1945. This example shows that democratic elections are won not because of past achievements, but based on the vision of the future. When a nation is in extreme conditions threatening its existence, the primary instinct becomes survival and returning to normal life, and the future in this context is not considered (Vodiannikov, 2023).

Problems that may arise during the organization and conduct of the electoral process include:

- Frequent air raid alerts will make reliable voting, vote counting, and election results impossible.
- Due to constant shelling, it will be impossible to provide equal voting conditions for all Ukrainians.
- Ukraine will not be able to guarantee equal access to voting for all citizens, as the voting process will be associated with varying levels of risk and constant shelling across the country.
- Conducting elections immediately after the end of martial law will be impossible in the most affected areas due to security issues, mined territories, destroyed polling stations, and outdated data in the State Voter Register.
- Elections will not be able to provide sufficient democratic legitimacy due to the mass displacement of Ukrainians who will not have the opportunity to vote, which may lead to the elections being declared illegitimate.
- Ukrainian electoral legislation provides for personal voting, which will overload polling stations at diplomatic and consular offices abroad.
- There is no electronic voting system in Ukraine, and the electoral code does not provide for experiments or pilot projects for the introduction of innovative technologies.
- During the pre-election campaign, which may coincide with the period of martial law, it is necessary to comply with security measures related to martial law (Andrushko, 2023).

Since February 24, 2022, more than 11 million Ukrainians have been forced to leave their country.

According to the United Nations High Commissioner for Refugees, as of early February 2023, almost 8 million Ukrainians are in European countries. At least 2.8 million Ukrainians were forced to move to the aggressor country or were deported. The number of Ukrainian children abroad has decreased from 650-690 thousand at the beginning of the conflict to approximately 480-520 thousand by the end of 2022. This means that about 10 million adult citizens who are voters are outside Ukraine (Afanasyeva, 2023).

Compared to the 2019 elections, when the number of Ukrainian voters abroad was about 410 thousand, the figure is now 25 times larger. Organizing the voting of such a large number of voters abroad requires new approaches and the creation of additional polling stations (UNIAN Information Agency, 2019).

Firstly, elections that are constitutionally questionable may undermine the legitimacy of not only the process itself but also the elected parliament. Tens of thousands of Ukrainians on the front lines, as well as those experiencing occupation or seeking refuge abroad, will feel deceived and alienated if they do not have the opportunity to vote or run for office. This sense of injustice may create new divisions in Ukrainian society, threatening post-war recovery.

Suspending martial law to hold elections will also not be positively received by the Ukrainian society. Public anger could undermine the legitimacy of the new parliament, especially if the number of casualties in the war increases after martial law is reinstated. Disillusionment with politicians may lead to a sense of hopelessness in democratic institutions.

Secondly, war distorts rational choice and deepens social divisions. Although sociological research during the war indicates unity and cohesion among the Ukrainian people, deep-seated differences remain, especially after personal experiences of the war. These emotional aftershocks and collective post-traumatic syndrome can lead to various scenarios of deteriorating overall psychological climate with corresponding consequences for democratic development.

In mid-2022, the Central Election Commission approved proposals to improve Ukraine's legislation aimed at preparing for and conducting elections after the cessation or termination of martial law in the country. These proposals were sent to the Verkhovna Rada Committee on State Building, Local Self-Government, Regional Development, and Urban Planning for further consideration and incorporation into the preparation of relevant draft laws.

Consultative democracy is gaining special significance in modern conditions. Its essence lies in the fact that the authorities are not obliged to consider the opinions of initiative groups, but at the same time, they can involve a wide range of subjects in consultations, drawing the attention of officials and public authorities to issues that, either by oversight or deliberately, have not received the necessary attention.

Therefore, despite the non-mandatory nature of consultative democracy, in cases where it causes public resonance, local and state authorities usually take public opinion into account in their decisions. Consultative democracy effectively draws attention to socially significant issues, and when these issues are truly important, the authorities cannot ignore them.

## Conclusion

- Representative democracy under martial law presents a complex problem that requires careful analysis and strategy development. Based on the above, it was concluded that even under the challenging conditions of martial law, democratic values and processes remain critically important for ensuring the legitimacy and stability of the government.
- Martial law can lead to restrictions on representative democracy, such as the prohibition of elections or the limitation of civil liberties. The conditions of military conflict require the adaptation of democratic institutions and processes to new realities. This includes developing alternative mechanisms for citizen participation and ensuring their voice in the decision-making process.
- An important stage is the development of political and social recovery strategies that contribute to the return to the normal functioning of democratic institutions after the conflict ends. The conditions of martial law create several problematic issues for representative democracy, but there are ways to solve them:
  - Martial law often accompanies the restriction of political rights and freedoms of citizens. This can include censorship, a ban on elections, and restrictions on the rights to freedom of speech and association. Solutions: It is important to maintain a minimum level of civil rights and freedoms, ensuring access to information and the ability to express a civic position.
  - The conditions of military conflict can disrupt the legitimacy of power structures, especially if they are established or maintained as a result of a military coup. Solutions: It is important to uphold the rule of law and develop mechanisms to return to legitimate democratic institutions.
  - Martial law can undermine the development of civil society and threaten the independence of public organizations. Solutions: It is necessary to support the work of civil society and ensure its independence and protection from the influence of power structures.
  - It is important to ensure citizen participation in decision-making, even under the challenging conditions of military conflict. Solutions: Using alternative forms of citizen participation, such as public discussions, petitions, and consultations, to ensure their voice in the governance process.
  - Regarding options, it is more appropriate to suspend the electoral process. Even if martial law is lifted to conduct elections and the electoral process begins, it will remain questionable from a constitutional point of view and will likely contradict the core principles of the Constitution regarding a democratic state and free elections. Wartime does not provide an environment where participants in the electoral process can freely and fully express their views and will. Additionally, it does not guarantee that all citizens, whether in the armed forces, seeking refuge abroad, or surviving under foreign occupation, can actively participate in political life. Thus, the impossibility of holding elections during wartime becomes a matter of both democracy and security.

Regarding further scientific research, it is necessary to consider which institutional mechanisms facilitate or hinder the development of representative democracy under martial law, and to focus on analyzing political and social recovery strategies after the war that contribute to the restoration of democratic processes and the strengthening of democratic institutions.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.13>

How to Cite:

Ivanchenko, E., Tesliuk, Y., Samoylenko, G., Plutytska, K., & Diachkova, M. (2024). Responsibility for the smuggling of doping substances in sport: an analysis of the violation of customs control. *Amazonia Investiga*, 13(77), 170-187. <https://doi.org/10.34069/AI/2024.77.05.13>

## Responsibility for the smuggling of doping substances in sport: an analysis of the violation of customs control

### Відповідальність за контрабанду допінгових речовин у спорті: аналіз порушення митного контролю

Received: April 7, 2024

Accepted: May 25, 2024

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#### Abstract

The study aims to determine the liability for violations of customs control in the area of doping substance smuggling. In most countries, smuggling is defined by criminal, administrative, and customs legislation. This type of illegal activity causes significant damage to the state's economy, disrupts public order in international trade, and undermines state sovereignty. Despite the international legal nature of smuggling, there is still no multilateral agreement to combat this type of crime. Modern smuggling is characterized by a high level of organization, technical equipment, and international connections. Therefore, effective combating of this violation of public order becomes possible only with close cooperation between countries. Due to the increasing instances of doping use in sports and its cross-border spread, customs control becomes a key element in

#### Анотація

Дослідження спрямоване на визначення відповідальності за порушення митного контролю в сфері контрабанди допінгових речовин. У більшості країн світу контрабанда визначена кримінальним, адміністративним та митним законодавством. Цей вид протиправної діяльності завдає значних збитків економіці держави, порушує правопорядок в сфері міжнародної торгівлі та підриває державний суверенітет. Незважаючи на міжнародно-правовий характер контрабанди, досі не існує багатосторонньої угоди щодо боротьби з цим видом злочину. Сучасна контрабанда відзначається високим рівнем організації, технічного оснащення та міжнародних зв'язків. Тому, ефективна боротьба з цим порушенням правопорядку стає можливою лише за умови тісної співпраці між

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ensuring public safety. Given the above, examining the legal aspects related to the smuggling of doping substances across customs borders, considering international experience, is relevant and necessary. The aim of the study is to analyze the peculiarities of liability for violations of customs control in the area of doping substance smuggling. The research methodology includes methods such as document and information analysis, logical method, modeling method, comparison method, and systemic method. As a result of the study, the liability of individuals and legal entities involved in doping substance smuggling under national and international law is analyzed. In particular, the interaction between customs control bodies, law enforcement agencies, and sports organizations in detecting and combating doping smuggling is examined. The study highlights the possibility of improving legislation and increasing the effectiveness of customs control to prevent the spread of doping in sports. The importance of international cooperation and information exchange between countries to effectively counter this negative phenomenon is noted.

**Keywords:** sport, doping, smuggling of doping substances, responsibility for violation of customs.

## Introduction

The problem of doping in sports is one of the main topics that is constantly discussed. Although doping can help athletes improve their performance by strengthening muscles, reducing fatigue, and relieving pain, its use carries significant health risks. This can lead to serious consequences, including disability or even death. Many drugs are banned in sports because of their negative effects on the health of athletes.

Every year, the World Anti-Doping Agency (WADA) publishes an updated list of prohibited substances, which are divided into several categories. These include stimulants, which improve concentration and reduce fatigue but can harm the heart; steroids that help increase muscle mass and strength but are dangerous to organs such as the liver and heart; hormones that are dangerous for health when used uncontrollably; diuretics, which mask the use of other prohibited substances and can cause dehydration; drugs that help relieve pain but can cause injuries; and cannabinoids (except cannabidiol), which can impair coordination and concentration (WADA, 2024). Therefore, the issue of transporting doping substances across the customs border is particularly relevant.

Violations of customs control in the field of smuggling of doping substances are a serious challenge for sports ethics and global health. Doping substances can not only cause unfair advantages in sports but also seriously undermine the health of athletes and violate the principles of fair competition. Customs control plays a key role in preventing the spread and use of banned substances in sports. Responsibility for violation

країнами. У зв'язку зі зростанням випадків використання допінгу в спорті та його транскордонним поширенням, митний контроль стає ключовим елементом забезпечення безпеки суспільства. З огляду на вищевикладене, розгляд правових аспектів, пов'язаних з контрабандою допінгових речовин через митний кордон, враховуючи міжнародний досвід є актуальним та необхідним. Метою дослідження є аналіз особливостей відповідальності за порушення митного контролю у сфері контрабанди допінгових речовин. Методологію дослідження включають такі методи, як: метод аналізу документів та інформації, логічний метод, метод моделювання, метод порівняння та системний метод. У результаті дослідження проаналізовано відповідальність фізичних та юридичних осіб, які здійснюють контрабанду допінгових речовин за національним та міжнародним законодавством. Зокрема, розглянуто взаємодію між органами митного контролю, правоохоронними органами та спортивними організаціями у виявленні та протидії контрабанді допінгу. Дослідження висвітлює можливість удосконалення законодавства та підвищення ефективності митного контролю для запобігання поширенню допінгу в спорті. Відзначається важливість міжнародного співробітництва та обміну інформацією між країнами з метою ефективного протидії цьому негативному явищу.

**Ключові слова:** спорт, допінг, контрабанда допінгових речовин, відповідальність за порушення митних правил.

of customs control in this context requires careful consideration and effective measures. Strict customs procedures and international standards are important elements in detecting and preventing the smuggling of doping substances. In addition, it is important to establish responsibility for those who violate customs regulations and introduce dangerous substances into the sports environment.

The responsibility of offenders and the fight against violations of customs control in the field of smuggling of doping substances requires a comprehensive approach and effective cooperation between countries. Ensuring integrity and safety in world sports requires the creation and observance of international norms that regulate customs procedures and control the movement of doping substances.

In this study, we will focus on examining the problematic issues and consequences of violations of customs control in the field of smuggling of doping substances, as well as the importance of the implementation and observance of international standards to ensure integrity and safety in sports.

The object of the study is responsibility for violation of customs control in the field of smuggling of doping substances.

The subject of the study is the relationship that arises, changes, and ends during prosecution for violation of customs control in the field of smuggling of doping substances.

The task of the research is:

- Study of the peculiarities of smuggling of doping substances in sport;
- Consideration of specifics of responsibility for violation of customs control in the field of smuggling;
- Analysis of problematic issues of prosecution for violation of customs rules in the field of customs control of smuggling of doping substances.

Legal Framework of the article consists of the following:

International Conventions and Agreements:

The UNESCO International Convention against Doping in Sport (2005) sets out measures to combat doping, including provisions on trafficking and smuggling of doping substances. It obliges signatory countries to adopt appropriate measures to prevent and punish doping-related activities.

The World Anti-Doping Code (WADC), administered by the World Anti-Doping Agency (WADA), establishes international standards for anti-doping policies, including trafficking and possession of prohibited substances.

National Legislation:

Countries implement their own anti-doping laws in line with international commitments. For example, the Controlled Substances Act in the United States classifies many doping substances as controlled substances, making their trafficking a federal crime.

The Anabolic Steroid Control Act (1990, amended in 2004) in the U.S. specifically addresses anabolic steroids, enhancing penalties for smuggling and illegal distribution.

European Union member states have harmonized legislation under the EU Anti-Doping Policy, requiring member countries to implement laws and regulations consistent with WADA standards.

Customs and Border Protection Regulations:

Customs authorities play a critical role in intercepting smuggled doping substances. National customs agencies collaborate with international bodies to monitor and control the flow of prohibited substances across borders.

Laws often empower customs officials to search, seize, and detain substances suspected of being used for doping.

Consequences of smuggling doping substances:

Criminal Penalties:

**Imprisonment:** Convictions for smuggling doping substances can result in significant prison sentences. The length of imprisonment varies by jurisdiction and the nature of the offense. For example, in the U.S., trafficking anabolic steroids can result in up to 10 years in prison.

**Fines:** Offenders may face substantial fines. Penalties can range from thousands to millions of dollars, depending on the scale of smuggling operations and the jurisdiction.

Administrative Sanctions:

**Suspension and Bans:** Athletes and support personnel found guilty of smuggling doping substances can face long-term suspensions or lifetime bans from sports.

**Revocation of Licenses:** Professionals such as coaches, trainers, or medical personnel may lose their professional licenses and accreditation.

Civil Penalties:

**Asset Forfeiture:** Authorities may seize assets connected to the smuggling operation, including money, property, and vehicles used in the transport of doping substances.

**Damages and Compensation:** Civil lawsuits may be filed against individuals or organizations involved in smuggling, seeking damages for harm caused by the illegal distribution of doping substances.

Reputational Damage:

**Public Disclosure:** Convictions and sanctions are often publicly disclosed, leading to significant reputational harm for individuals and organizations involved.

**Loss of Sponsorships:** Athletes and teams may lose sponsorship deals and endorsements, impacting their financial standing and career prospects.

Impact on Sports Organizations:

**Institutional Penalties:** Sports clubs, teams, or organizations involved in or complicit with smuggling operations may face sanctions, including fines, exclusion from competitions, and loss of privileges.

**Policy Reforms:** Incidents of smuggling often lead to stricter regulations and enhanced anti-doping measures within sports organizations.

Enforcement and Cooperation

International Cooperation:

Law enforcement agencies across countries cooperate through organizations like INTERPOL and Europol to combat the smuggling of doping substances.

Joint operations and intelligence sharing are crucial in dismantling international smuggling networks.

Education and Prevention:

Many countries invest in educational programs aimed at athletes, coaches, and the public to raise awareness about the legal and health risks associated with doping.

Preventive measures include rigorous testing protocols and promoting a culture of clean sport.

Technological Measures:

**Advanced Detection:** Technologies such as mass spectrometry and bioinformatics are employed to detect smuggled substances more effectively.

**Data Analytics:** Big data and machine learning are increasingly used to identify patterns and predict smuggling activities, allowing for preemptive actions.

Overall, the legal framework surrounding the smuggling of doping substances is comprehensive and multifaceted, involving international treaties, national laws, and cooperative enforcement strategies. The consequences for smuggling are severe, reflecting the global commitment to maintaining the integrity of sports and protecting the health of athletes.

The article consists of the several sections:

#### Theoretical Framework or Literature Review

This section reviews the existing literature on doping in sports, including the health risks associated with doping substances and the rationale behind their prohibition. It discusses the categories of prohibited substances as outlined by the World Anti-Doping Agency (WADA), such as stimulants, steroids, hormones, diuretics, pain relievers, and cannabinoids, and the specific health risks they pose. The section also explores the ethical implications of doping, its impact on fair competition, and the role of customs control in preventing the smuggling and spread of these substances in the sports environment.

#### Methodology

This section outlines the research methods used to investigate the issues related to the smuggling of doping substances and the enforcement of customs control. It describes the data collection process, which includes the analysis of legal documents, international standards, and case studies of customs violations. The methodology involves a combination of empirical research and comparative analysis to examine the responsibility and prosecution for violations of customs control in different countries. It also discusses the criteria for evaluating the effectiveness of customs procedures and international cooperation in combating the smuggling of doping substances.

#### Results and Discussion

This section presents the findings of the study, detailing the problematic issues and consequences of violations of customs control in the smuggling of doping substances. It analyzes specific cases of smuggling, the methods used to circumvent customs controls, and the challenges faced by authorities in detecting and preventing these activities. The discussion includes an evaluation of the current legal frameworks and the effectiveness of international standards in regulating customs procedures. It highlights the importance of establishing clear responsibilities and stringent measures to combat smuggling, as well as the need for effective international cooperation to ensure the integrity and safety of global sports.

#### Conclusion

The final section summarizes the key findings of the study and their implications for the fight against the smuggling of doping substances. It emphasizes the necessity of robust customs control and the enforcement of international standards to prevent the spread of banned substances in sports. The conclusion calls for a comprehensive approach to tackling these issues, including stricter penalties for violators, enhanced international collaboration, and continuous updates to legal and regulatory frameworks. It also underscores the critical role of maintaining the principles of fair competition and protecting the health of athletes in the global sports arena.

#### Theoretical Framework or Literature Review

In general, there are several legal and criminological theories related to smuggling and liability.

## Legal Theories

### Deterrence Theory:

**Principle:** This theory posits that stringent legal penalties and the likelihood of being caught deter individuals from engaging in illegal activities, such as smuggling doping substances.

**Application:** Enhancing the severity of penalties for smuggling and increasing customs inspections can reduce the incidence of these crimes.

### Strict Liability:

**Principle:** Under strict liability, individuals can be held accountable for smuggling doping substances regardless of intent or knowledge.

**Application:** This legal approach ensures that anyone involved in the transportation, distribution, or possession of banned substances is liable, emphasizing the importance of compliance with customs regulations.

### International Law and Cooperation:

**Principle:** International treaties and agreements, such as the UNESCO International Convention against Doping in Sport, establish a cooperative legal framework to combat the global issue of smuggling doping substances.

**Application:** Countries are obliged to harmonize their laws with international standards, facilitating cross-border cooperation in enforcing anti-smuggling measures.

## Criminological Theories

### Routine Activity Theory:

**Principle:** This theory suggests that crime occurs when there is a convergence of motivated offenders, suitable targets, and a lack of capable guardianship.

**Application:** Strengthening customs controls and surveillance reduces the opportunities for smuggling doping substances by increasing the guardianship component.

### Strain Theory:

**Principle:** This theory posits that individuals may turn to crime, such as smuggling, when they experience strain or pressure, particularly due to the high demands and competitive nature of sports.

**Application:** Addressing the underlying pressures on athletes and providing support systems can reduce the motivation to engage in doping and smuggling.

### Social Learning Theory:

**Principle:** According to this theory, individuals learn criminal behavior, including smuggling, through their associations with others who engage in such activities.

**Application:** Implementing educational programs that promote ethical behavior and the consequences of smuggling can counteract the influence of peers who may endorse such illegal activities.

These theories provide a comprehensive understanding of the legal and criminological aspects of smuggling doping substances, highlighting the importance of effective legal frameworks and enforcement, as well as addressing the social and psychological factors that contribute to this illegal activity.

It is within the framework of the above theories that scientists, whose work is analyzed in this article, conduct their research. They are: Androschuk, Babikov, Barkhan, Demchuk, Dykiy, Izmailova, Shcherbak, Kekish, Tymoshenko, Fedchenko, Kravchenko, Kutuev, Bukalerova, Houlihan, García, Donati, Thevis, Geyer, Thomas, and Schänzer.

Androschuk (2020) analyzed the issue of the spread of the trend of counterfeiting drugs. In particular, the activity of Europol and the fact that there is an "alarming trend" of illegal importation of contraband drugs into the EU market, as well as the growth of circulation in the EU of oncological drugs stolen from hospitals, were noted. Asia is identified as the main source of both medical drugs and doping agents. Wholesalers deviate from the legal supply chain and resell products to criminal groups. Counterfeit medicines are manufactured and packaged illegally in underground laboratories, often in the EU. Thus, arrests were made in Belgium, Cyprus, Finland, France, Greece, Hungary, Italy, Portugal, Slovakia, Spain, Ukraine and Great Britain. This circumstance also has the consequence that in these countries doping substances are also manufactured for further smuggling.

The moment of the end of criminal offenses related to the illegal movement of objects across the customs border of Ukraine became the object of research by Babikov (2022). The author drew attention to the fact that taking into account the content of Article 201 of the Criminal Code and judicial practice, in particular the practice of the Court of Cassation of the Supreme Court, as well as taking into account the views expressed in criminal law science, it can be concluded that the moment of completion of smuggling depends significantly on the place, direction, the form and method of moving the objects of this criminal offense. The key question is: is the object of contraband imported into the territory of Ukraine or, on the contrary, exported from the territory of Ukraine? At the same time, the author notes that despite a large number of supporters of this approach, one should doubt the position according to which the moment of the end of smuggling is determined by the actual movement of objects across the customs border of Ukraine since this position does not correspond to the "spirit" of criminal legislation and the priorities of the state's criminal law policy in the field of combating shady "import-export" schemes of circulation of certain items. Based on the analysis of the positions expressed in the legal literature regarding the correct determination of the moment of the end of smuggling for criminal legal qualification, the author believes that it is appropriate to support the thesis that the transfer of the moment of the end of smuggling to an earlier stage than the actual crossing of the customs border is possible only after making changes to Article 201 of the Criminal Code. We agree with this thesis and believe that the issue of the moment of committing smuggling should be additionally regulated.

Ways of committing smuggling under martial law conditions are studied in the work of Barkhan (2022). It is noted that the methods of committing smuggling, which are determined by the functional and deterministic content of illegal activities regarding the movement of goods outside customs control or with evasion from customs control, have their differences depending on the type of transport used to transport contraband objects. The temporary introduction of a legal regime of martial law in Ukraine in the context of the escalation of the armed aggression of the Russian Federation led to the emergence of a new way of evading customs control of smuggling, in particular by transporting goods across the customs border of Ukraine under the guise of humanitarian aid. In this regard, the selection of modern methods of committing smuggling under martial law conditions will contribute to more effective detection of this activity, as well as contribute to the improvement of the system of countermeasures against violations of customs rules in general. We agree with the author's position that the issue of transporting, for example, doping substances outside customs control depends on several circumstances, including the type of transport.

Demchuk (2019) considered the topic of improving the activities of customs authorities in the field of combating smuggling. In particular, according to the author's opinion, with which we agree, a comprehensive approach is necessary. Improving the work of customs authorities in carrying out customs control to combat smuggling is possible if the development of international cooperation, progress in the field of information technologies, and active interaction between agencies from other spheres of law enforcement are taken into account. In addition, the automation and digitization of processes play a significant role to avoid corruption risks.

The state policy of preventing and countering economic crime in the system of guaranteeing the economic security of Ukraine was considered by Dykiy (2023). Economic crime has a significant impact on the system of economic security of the state, as it is a destructive factor that disrupts the system of economic

relations at various levels, both internal and external. Economic crime is an interdisciplinary category, as it occupies an important place in the object-subject field of economic, sociological, political, legal, and public administration sciences. Identification of the consequences of economic crime is essential for the development of state policy in the field of prevention and countermeasures against this phenomenon, which is a key tool for guaranteeing the economic security of the state. This approach will allow us to fully reveal the scientific problem of economic crime and to develop new strategies for effective prevention and countermeasures against this phenomenon.

The following authors paid attention to the issues of combating economic crimes and the importance of legalizing the shadow economy in Ukraine: Kolomoiets, Tsybulnyk, Moroz, Prymachenko, and Khashev (2021). The authors concluded, that the availability of a considerable variety of types and forms of the shadow financial transactions implementation requires the implementation of a measures complex, aimed at timely identification and prevention, development of methodological instruments for assessment of the effects from the existence of the shadow sector in the national economy.

Izmailova and Shcherbak (2005) deal with the issue of doping and combating it. Kekish (2019) investigated the foreign experience of using customs control in combating the smuggling of goods. The relevance of the problem of smuggling of goods as a dangerous social phenomenon was considered and the essence of this phenomenon was analyzed within the framework of the customs legislation of Ukraine. The monitoring of the control activities of fiscal authorities for the detection of customs offenses and the prevention of smuggling of goods was carried out. Features of customs control in Ukraine and abroad are highlighted. Various types of customs control are specified, and attention is paid to customs post-audit in the activities of fiscal bodies. The procedures for carrying out customs post-audit in such countries as Korea, Ireland, France, Bulgaria, and others are described in detail. It has been established that in global practice, almost the entire process of customs clearance and customs control is based on the use of a risk management system. It is emphasized that to reduce smuggling phenomena and effectively support international trade, customs authorities should take measures to increase the efficiency and effectiveness of control and inspection work. Directions for improving customs control are proposed, including the establishment of cross-border cooperation with the customs services of foreign countries, the use of modern technical means of control, the latest methods in the training and activities of canine teams, as well as the improvement of the customs control mechanism taking into account foreign customs post-audit practices and other aspects.

What is more, Tymoshenko (2021) analyzed modern smuggling schemes. The author noted that in modern conditions there are gaps in the legislation, which create the problem of the lack of effective tools for countering violations of customs rules. For example, the legislation does not establish mandatory sealing of vehicles and 80% of goods moving on the territory of Ukraine are not provided by the importer. As a result, there is an opportunity to simply replace or "drown" the cargo. Fedchenko and Kravchenko (2021) investigated the application of legislation on smuggling and customs violations.

Moreover, Kutuev, Bukalerova, and Ulezko (2018) considered the issue of responsibility for the use of doping in sports, as well as the transportation of doping substances. In particular, the article focuses on the modeling of criminal liability for the organization, distribution, and use of substances and (or) methods prohibited in sports. The article substantiates and discloses the need to establish criminal liability for the use of substances and (or) methods prohibited in sports for various categories of subjects, such as professional athletes, non-professional athletes, officials, medical personnel who organize the use of substances prohibited in sports and (or) methods, trainers and other persons. Also considered is the process of distribution of drugs prohibited in sports, which may involve other persons related to professional sports, such as former professional athletes, directors, and managers of sports teams, and other persons with direct connections and contacts in the world of professional sports.

Research by Houlihan, and García (2012) examined the application of legislation to control the manufacture, movement, importation, distribution, and supply of performance-enhancing drugs in sport. Application of legislation to control the production, movement, importation, distribution, and supply of drugs that increase performance in sports.

Finally, Donati (2007) examined the world circulation of doping. The work reveals the difficulties facing the anti-doping movement, including the lack of national laws in many countries and the failure to ensure compliance with existing laws in others. In addition, there is a lack of reliable information for accurately

highlighting the problem and developing effective solutions. According to the World Anti-Doping Agency (WADA), this study is the only attempt to quantify the scale of the problem and identify international trends, bringing together in one report information on the latest developments in the world of international doping trade.

In Thevis, Geyer, Thomas, Wilhelm, and Schänzer (2011), the main conclusions are that detecting the use of unauthorized drugs by cheating athletes is a challenge for doping control laboratories, as it is accompanied by additional difficulties associated with the identification of unknown and uncharacterized compounds and their metabolites, in contrast to known and studied therapeutic agents. The same applies to the detection and consideration of doping substances from conventional medicines.

## **Methodology**

The use of the method of document and information analysis contributed to the verification of documentation thanks to the logical analysis of documents that, for example, accompany the cargo to identify irregularities and inconsistencies, as well as the information summary of data on senders, recipients, transport routes and other data to identify logical deviations.

With the help of a logical method, the question of the behavior profiles of offenders in the field of smuggling of doping substances was investigated. In particular, the logical analysis of transportation histories and reports positively affects the detection of patterns that may indicate abnormal activity, and the logical comparison of current data with similar situations in the past helps to identify similar scenarios.

The modeling method, based on the replacement of a specific object of research with another, similar to it, was used to analyze and forecast possible risks in the field of smuggling of doping substances.

The comparison method is an important tool in the analysis and detection of violations of customs control in the field of smuggling of doping substances. This method involved the comparison of various aspects that help identify anomalies or unusual situations. In particular, with the help of this method, it was possible to compare the regulation of smuggling of doping substances under Ukrainian legislation and under foreign legislation, as well as a comparison of tools for detecting and combating this type of smuggling was carried out. Concerning responsibility, both the procedures for bringing to responsibility and the provisions of sanctions of the articles are compared.

The systematic method in the context of responsibility for violation of customs control in the field of smuggling of doping substances involves a comprehensive approach to the analysis and solution of the problem. It is based on the idea of a system as a whole, where each element interacts with others to achieve a common goal. The systemic approach made it possible to consider the problem of smuggling of doping substances in the context of a large system, where all elements and factors interact to achieve a common goal — effective control and prevention of customs control violations.

## **Results and Discussion**

### ***Limitations of the Study***

#### **Lack of Empirical Data**

One of the primary limitations of this study is the absence of empirical data. While the theoretical and legal frameworks are well-examined, the study does not include quantitative data or case studies that could provide a more concrete understanding of the scope and impact of smuggling doping substances. This limits the ability to measure the effectiveness of current policies and to propose data-driven improvements.

#### **Influence of Unconsidered Factors**

The study may not fully account for several external factors that can influence the smuggling of doping substances. These include:

#### **Technological Advancements:**

Rapid advancements in smuggling techniques and technology could outpace the existing detection methods, making current anti-smuggling measures less effective.

#### Economic Factors:

Economic incentives and pressures can drive individuals and organizations to engage in smuggling, which the study does not deeply explore.

#### Political Climate:

Changes in political climates and government priorities can affect the enforcement of anti-doping laws and international cooperation.

#### Variability in International Cooperation

While international cooperation is emphasized, the study does not delve into the variability and complexities of such cooperation. Differences in legal standards, enforcement capabilities, and political will among countries can significantly impact the effectiveness of anti-smuggling efforts. These nuances are not fully explored, which could lead to an oversimplified understanding of international dynamics.

#### Focus on Legal and Administrative Frameworks

The study predominantly focuses on legal and administrative frameworks, potentially overlooking the sociocultural and psychological factors that contribute to smuggling. Understanding the motivations and social networks of those involved in smuggling doping substances could provide a more holistic approach to tackling the issue.

#### Generalization of Findings

The findings and conclusions drawn from the study may not be universally applicable. The study's focus on specific regions, such as Europe and Ukraine, means that its conclusions might not be relevant in different geographical or cultural contexts where smuggling dynamics and enforcement mechanisms vary.

#### Limited Scope on Organizational Responsibility

The study touches upon the role of customs and anti-doping organizations but does not extensively analyze the operational challenges and resource constraints these organizations face. A deeper examination of these aspects could provide insights into improving organizational effectiveness in combating smuggling.

By addressing these limitations, future research can build on this study's findings to develop a more comprehensive and empirically grounded understanding of the smuggling of doping substances and the effectiveness of anti-doping policies and enforcement mechanisms.

According to the first task regarding the study of the peculiarities of the smuggling of doping substances in sport, the following was established

### **Results**

Combating the spread of doping substances in sports is somewhat complicated due to the special status of sports as an autonomous legal order (Kharytonov et al., 2021). Despite this the international fight against doping in sports became truly effective after the adoption in 2005 of the UNESCO International Convention on the Fight against Doping in Sports. This enactment provided the necessary international legal basis for anti-doping activities, which was effectively lacking before. Until now, all regulatory acts regulating the fight against doping, due to the non-governmental nature of publishers, had a significant drawback - they were not universally binding for all participants in world sports. They could be ignored by interested parties at will. Only after recognizing the universally binding norms of the UNESCO Convention, the Anti-Doping Code and other anti-doping norms by the UNESCO member states, the high effectiveness of these norms was achieved. Now it can be reasonably asserted that the responsibility for the use of doping in sports is

fully supported by the coercive power of all states that have ratified the UNESCO Convention and made it an integral part of their national legislation (currently, the UNESCO Convention has been ratified by more than 170 countries of the world) (UNESCO, 2005).

Therefore, the fight against doping is based on effective policies, resources, and means aimed at identifying and solving various problems and challenges related to doping. Anti-Doping in Sport legislation is designed to provide an understanding of the main measures defined by the International Convention against Doping in Sport and to support States Parties in implementing its provisions to strengthen their capacity and skills. The document defines the role of each governing body and each key stakeholder of the Convention, indicating their interrelationships. Chapter V (Partnership and Cooperation) emphasizes the importance of cooperation with sports bodies and other international and national parties to strengthen compliance with the provisions of the Convention (UNESCO, 2022). Despite the growing popularity of new psychoactive substances and the increase in online drug trade, traditional smuggling methods and conventional drugs continue to dominate the Finnish drug market. Cannabis and amphetamines are common, and cocaine use is on the rise. Sweden has increased its role as an intermediary country in the drug trade to Finland. For example, drugs are most often imported into Finland from the Baltic countries and Western Europe via Sweden, using the northern land route, air and sea transport. In addition, mail and express courier shipments are often used for drug trafficking on the Darknet. A new phenomenon is the smuggling of large consignments of cocaine in sea containers from South America, possibly for transit. Finland has become a transit point for drugs moving both to Russia and Europe and from other Nordic countries, especially Norway. In addition, Finland is used as a transit country for precursors and unclassified precursors smuggled from Asia to Europe and used in drug production (Tulli Tul Customs, 2019).

At the same time, international law enforcement agencies are actively fighting to detect smuggling of doping substances. For example, Europol was responsible for the coordination of the third Operation Shield, a global initiative aimed at combating the illegal circulation of counterfeit drugs and substandard doping substances. The operation was led by France, Greece, Italy, and Spain, involving police and customs from 28 countries (19 EU members and 9 other countries). The work of the customs authorities was coordinated by the European Anti-Fraud Office (OLAF), and financial support was provided by the European Union Intellectual Property Office (EUIPO). The operation was also supported by FRONTEX, the World Anti-Doping Agency (WADA), the World Customs Organization (WCO), and national medical agencies. Planned for the period from April to October 2022, the operation was aimed at uncovering and stopping the trade in counterfeit drugs and illegal doping substances that are used off-label. (EUROPOL, 2022; Notes Deseguret, 2023).

Smuggling is also found in the territory of Romania and Moldova. Thus, with the support of Eurojust and Europol, the Romanian and Moldovan authorities took measures against an organized criminal group (OCG), which was suspected of trafficking in high-risk doping substances. In the course of joint actions, 11 suspects were arrested and raw materials intended for the production of more than one million doses of anabolic steroids were seized. Eurojust assisted the authorities in setting up and funding the Joint Investigation Team (JIT) to investigate the case (Diplomat magazine, 2023).

It is worth noting that the International Anti-Doping Organization believes that in order to succeed in the fight against doping in sports and therefore to protect the rights of clean athletes around the world, anti-doping organizations must go beyond simple doping testing. They should develop additional methods for collecting, sharing, and using information and evidence on the supply and use of prohibited substances and methods by athletes under their jurisdiction, as well as on their use (World anti-doping agency, 2011). We agree with this position and believe that there should be cooperation and established communication to prevent and detect the smuggling of doping substances.

The experience of Sweden regarding the issue of doping smuggling is interesting. On April 1, 2011, a new law came into force in Sweden, which gives customs authorities the right to seize and destroy substances that have become the subject of abuse but are not yet classified as narcotics or dangerous goods. This law gives customs and police officers the ability to confiscate substances that contain ingredients that have not yet been recognized as drugs or harmful to health but may be recognized as such in the future. The Act on the destruction of certain substances that are subject to abuse and endanger health defines the powers of Swedish customs in this context. Swedish customs have been empowered to control goods from countries that are not members of the European Union, according to the Swedish Customs Service Act. The authority

to control goods from other EU countries is defined in the Act on the Powers of Swedish Customs at the border of Sweden with another EU country. In the process of classifying new substances according to their effects on health, the Public Health Agency and the Medical Products Agency in Sweden play an important role. Since new chemical substances are constantly being developed, their classification is an important task from the point of view of health care (Tullverket, 2023).

In addition, it is worth noting that in addition to the detection of smuggling of doping substances during customs control, it is possible to find out the violation of customs legislation through anti-doping control of athletes directly. Anti-doping control is an important component of any modern anti-doping program. It is a complex process that includes testing planning, providing location information, sample collection and transportation, laboratory testing, therapeutic use requests, results processing, and appeals. An important element of anti-doping measures is the testing of athletes outside of competitions. Previously, athletes were often tested for doping already at international competitions, which was too late. This created an opportunity for those who used doping to stop using it early enough for the substances and their metabolites to be eliminated from the body. Therefore, out-of-competition testing of athletes, which was first enshrined in the 2005 UNESCO Convention, significantly increases the effectiveness of anti-doping measures and is a constant threat to potential violators. As of today, an athlete can be tested anywhere, both during and outside of competition, from 6 a.m. to 11 p.m. The number of tests per year is not limited and depends on the plan of anti-doping organizations. Sample collection is carried out by specially trained personnel. Several specialized structures and organizations participate in anti-doping measures. The anti-doping organization that collected the samples is processing the research results. Testing of samples is carried out in WADA-accredited independent anti-doping laboratories, the choice of which depends on the anti-doping organization (UNESCO, 2005).

It is important to note that one of the key features of responsibility for the use of doping is the principle of strict personal responsibility of the athlete. The Code stipulates that each athlete is personally responsible for preventing the use of prohibited substances in his body. Thus, to find an athlete guilty, it is not necessary to prove his intention, mistake, negligence or awareness of violation of anti-doping rules. It is important to note that although the subjective side of the violation (ie, intent or negligence) may affect the determination of punishment, it is only relevant when imposing sanctions on the violator.

It is worth noting that the general strengthening of liability for intentional violations is accompanied by a tendency to soften punishments for "accidental violators." Where the athlete can prove no fault or negligence, sanctions may be less severe, including a warning without suspension or a limited suspension of up to two years (CAS Anti-Doping Division, 2020). Based on the conducted analysis, it can be noted that the important function of bringing persons to justice for the use of doping is not only punishment, but also an educational and preventive role. This is especially important for young athletes who witness well-known cases of doping, where the culprits lose the medals and status for which they have worked for many years, sometimes even ruining their health.

Therefore, from the above analysis, we can conclude that the smuggling of doping substances is a phenomenon that is actively being fought both by individual states and by international law enforcement and anti-doping organizations.

***According to the second task regarding the specifics of responsibility for violation of customs control in the field of smuggling, the following was established***

Since 1961, three conventions of the United Nations have recommended treating the illegal supply of narcotic drugs and psychotropic substances as a criminal offense punishable by imprisonment. However, since the conventions do not define specific sanctions, there is a significant difference in the possible punishments for similar crimes in various European countries. The European Union has attempted to reduce this diversity through Framework Decision 2004/757/JHA, which sets minimum standards for the elements of criminal acts and orders in the field of drug trafficking. However, two evaluations carried out in 2009 and 2013 by the European Commission emphasized that these minimum rules "have not significantly affected" the practice of criminal prosecution, sentencing, and punishment in EU member states. (European Monitoring Center for Drugs and Drug Addiction, 2017).

Also, it is interesting that the states have agreed to monitor compliance with the requirements of anti-doping legislation. In particular, the World Anti-Doping Agency (WADA) has the authority to appoint special "audit groups" to visit countries that have signed the World Anti-Doping Code to assess their compliance with the obligations stipulated by the Code (Council of Europe, 2022).

Let's consider in more detail the issue of responsibility for smuggling under Ukrainian legislation. Thus, persons who carry out smuggling and violate customs rules violate the procedure established by the legislation of Ukraine for the movement of goods and vehicles across the customs border of Ukraine. These actions harm the country's economy, its cultural heritage, public health, and public safety, and contribute to the expansion of the shadow sector of the economy. Violation of customs rules, for which a person is subject to administrative liability, means actions aimed at moving goods across the customs border of Ukraine with concealment from customs control. This may include the use of specially constructed caches and other means or methods that make it difficult to detect such goods. Also covered by this concept are actions that consist of giving goods the appearance of others, using forged documents or documents obtained by illegal means, or providing false information to revenue and tax authorities to move goods. This may also include providing false information regarding the name of goods, their characteristics, quantity, and other parameters necessary for customs control. Smuggling, i.e., actions for which a person is criminally liable, means the movement across the customs border of Ukraine outside of customs control or with concealment from customs control of cultural values, poisonous, powerful, explosive substances, radioactive materials, weapons or ammunition (except for smooth-bore hunting weapons or combat supplies for it), parts of firearms and rifled weapons, as well as special technical means of secretly obtaining information, timber or lumber of valuable and rare tree species, unprocessed timber, as well as other timber prohibited for export outside the customs territory of Ukraine, excise goods (except electric energy), narcotic drugs, psychotropic substances, their analogues or precursors or falsified medicinal products (Law No. 2341-III, 2001; Law No. 4495-VI, 2012; Law No. 3513, 2023). Therefore, Ukrainian legislation establishes administrative and criminal liability for violation of customs control.

Responsibility for violation of customs control in the field of smuggling of doping substances is serious and can arise at different levels - both at the level of individuals who commit the violations themselves and at the level of bodies or institutions that must ensure effective customs control.

At the same time, the following are highlighted:

Personal responsibility, in particular:

- Criminal liability (A person who smuggles doping substances may be subject to criminal liability under the laws of the country. This usually includes arrest, fines, and possible imprisonment).
- Administrative liability (According to customs legislation, a person may also be subject to administrative liability. This may include fines, confiscation of property, and other administrative sanctions).

Organizational responsibility:

- Customs authorities:

Customs authorities have a great responsibility for ensuring effective customs control.

If they do not perform their duties correctly, it can lead to a loss of control over the movement of doping substances.

- Anti-doping bodies:

The bodies responsible for the fight against doping in sports also have an important role.

They can cooperate with customs authorities to detect and stop the smuggling of doping substances.

***From the analysis of problematic issues of prosecution for violation of customs rules in the field of customs control of smuggling of doping substances, the following was established***

Responsibility for violation of customs control in the field of smuggling of doping substances can be determined at different levels, including legal, criminal and administrative responsibility. Investigation of such violations may include various methods:

- 1) Intelligence and investigative work (collection of information; analysis of volumes of information; study of a large volume of data to identify connections and patterns).
- 2) Technical means:
  - Customs scanners and equipment (the use of technical means such as X-ray scanners and other technologies to detect hidden substances in cargo or containers).
  - Electronic monitoring (monitoring of electronic communications and financial transactions to detect suspicious transactions).
- 3) International cooperation:

Exchange of information (cooperation with other countries and international customs organizations to exchange information and coordinate activities).

Implementation of joint customs operations to combat cross-border smuggling.

- 4) Cooperation with Anti-Doping Authorities:
  - Interaction with anti-doping agencies: Cooperation with organizations responsible for the fight against doping in sports to detect and stop the smuggling of doping substances.
- 5) Analysis of Documents and Cargoes:
  - Document verification (analysis of documents related to the movement of goods to identify irregularities and suspicious information).
  - Cargo inspection (thorough inspection of cargo and containers to detect hidden substances).
- 6) Information and analytical systems:
  - Application of modern information systems and programs for analysis of large volumes of data and identification of suspicious samples.
  - Constant monitoring and analysis of the effectiveness of measures for continuous improvement of the control system.

An example of the establishment of ties is the agreement between the International Criminal Police Organization and the World Anti-Doping Agency, which aims at interaction and cooperation in order to detect and stop the illegal transportation of doping substances (Interpol, 2009).

***Discussion. Mixed matters and conflicts***

According to the first task, with the help of the logical method and the method of analysis, various methods and methods of smuggling doping substances in sport, such as transportation across the border, use of hidden places, technical innovations, etc., are determined. Weaknesses in doping control and detection systems have been identified, which can be used by sportsmen's and smugglers to avoid detection. The international aspect of smuggling has been studied, and the main routes and countries most vulnerable to this type of activity have been identified. In particular, the cooperation of the World Anti-Doping Organization and Interpol was noted. The main participants in the smuggling of doping substances, such as athletes, coaches, doctors, competition organizers, pharmaceutical companies, and others, have been identified. But it is noted that the smuggling of doping substances has the consequence not only of violation of customs rules but also of violation of ethics and fair play, as well as possible threats to the health of athletes.

According to the second task, using the method of document and information analysis, it was noted that in most countries of the world, persons found in violation of customs rules and accused of smuggling may be subject to criminal liability. In addition, in cases of smuggling, customs authorities may have the right to confiscate property related to the violation. In addition to criminal sanctions, violators may also be subject to administrative fines. These fines may be imposed by customs or other responsible authorities. The important role of international cooperation for the investigation and bringing the guilty persons to justice was noted.

According to the third task, thanks to the use of the system method and the method of comparison, it was established that prosecution for violation of customs rules in the field of smuggling of doping substances can give rise to several problematic issues that should be taken into account. Thus, the smuggling of doping substances is often international in nature, and the question of cooperation between countries arises. Insufficient international coordination can make it difficult to effectively identify and prosecute those involved in smuggling. The legal treatment of customs violations and smuggling may vary from country to country. There is a question of determining specific types of liability (criminal, administrative, civil) for persons who smuggle doping substances. In the fight against the smuggling of doping substances, it is meaningful to improve international cooperation, harmonize legal standards, and improve detection and investigation systems. In addition, the effectiveness of prosecution measures depends on a clear definition of legal standards and the ability to overcome evidentiary and ethical challenges.

## Conclusions

The study provides a comprehensive analysis of the legal and criminological frameworks related to the smuggling of doping substances in sports. However, to address the complex nature of this issue effectively, it is essential to incorporate empirical data, consider various external factors, and propose innovative solutions. The conclusions derived from this study highlight the need for a multi-faceted approach to combat smuggling, encompassing legal, technological, economic, and international cooperation dimensions.

### Innovative Solutions

#### Enhanced Technological Solutions

##### Blockchain for Supply Chain Transparency:

Implementing blockchain technology can enhance the traceability of pharmaceuticals and sports supplements. This technology can create an immutable record of transactions, making it easier to detect and prevent the introduction of illicit substances into the supply chain.

##### AI-Powered Detection Systems:

Utilizing artificial intelligence (AI) and machine learning algorithms can improve the detection of smuggling activities. AI can analyze large datasets from customs, financial transactions, and communication networks to identify patterns and anomalies indicative of smuggling.

##### Strengthening International Cooperation

##### Global Doping Registry:

Establishing a centralized global doping registry that records and tracks all doping-related offenses and offenders can enhance information sharing and coordination among countries. This registry would facilitate the swift exchange of data and enable authorities to monitor and manage doping incidents more effectively.

##### International Task Forces:

Forming specialized international task forces comprising members from customs, anti-doping agencies, and law enforcement can ensure a coordinated approach to tackling doping smuggling. These task forces can conduct joint operations, share best practices, and provide technical assistance to countries with limited resources.

## Socioeconomic and Psychological Interventions

### Educational Campaigns:

Launching global educational campaigns targeting athletes, coaches, and medical professionals can raise awareness about the dangers of doping and the legal consequences of smuggling. These campaigns should focus on the ethical, health, and career risks associated with doping.

### Incentive Programs:

Developing incentive programs for whistleblowers who report smuggling activities can encourage insiders to come forward with valuable information. Providing financial rewards and ensuring anonymity can make these programs more effective.

## Legal and Policy Reforms

### Unified Legal Standards:

Harmonizing legal standards across countries for doping offenses can ensure a more consistent approach to prosecution and punishment. International agreements should aim to standardize definitions, penalties, and procedures related to doping smuggling.

### Dynamic Regulatory Frameworks:

Establishing dynamic regulatory frameworks that can quickly adapt to new substances and smuggling methods is crucial. Regulatory bodies should have the authority to classify and ban new psychoactive substances swiftly, keeping pace with the evolving smuggling landscape.

### Organizational and Operational Improvements Cross-Training Programs:

Implementing cross-training programs for customs officers, law enforcement, and anti-doping officials can improve their ability to identify and respond to smuggling activities. These programs should cover the latest detection techniques, legal procedures, and coordination strategies.

### Resource Allocation and Support:

Ensuring adequate funding and resources for customs and anti-doping agencies can enhance their operational capabilities. Investments in advanced detection equipment, staff training, and research into new smuggling trends are essential for maintaining robust enforcement mechanisms.

By adopting these innovative solutions, the fight against the smuggling of doping substances can become more effective, ensuring the integrity of sports and the health and safety of athletes globally.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.14>

How to Cite:

Shuppe, L., Koval, V., Sotska, H., Trynus, O., & Melnyk, A. (2024). Communicative competence of future specialists in the information and digital educational environment. *Amazonia Investiga*, 13(77), 188-200. <https://doi.org/10.34069/AI/2024.77.05.14>

## Communicative competence of future specialists in the information and digital educational environment

### Комунікативні компетентності майбутніх фахівців в інформаційно-цифровому освітньому середовищі

Received: April 5, 2024

Accepted: May 25, 2024

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#### Abstract

The article proves the importance of communicative competence for future specialists and shows the importance of principles for improving communication skills in order to bring them to the level of competence, the components of communicative competence are considered. The role of the information and digital educational environment for creating favorable conditions for the formation of communicative competence of future specialists is shown. The main organizational forms of education and the role of ICT, virtual learning environment, media educational technologies in the formation of communicative competence of future specialists are substantiated. The implemented and experimentally verified author's method of forming the communicative competence of future

#### Анотація

У статті доведено значення комунікативної компетентності для майбутніх фахівців та показано вагомість принципів для удосконалення навичок комунікації з метою доведення їх до рівня компетентності, розглянуто складові комунікативної компетентності. Показано роль інформаційно-цифрового освітнього середовища для створення сприятливих умов формування комунікативної компетентності майбутніх фахівців. Обґрунтовано основні організаційні форми навчання та роль ІКТ, віртуального навчального середовища, медіаосвітніх технологій у формуванні комунікативної компетентності майбутніх фахівців. Впроваджена та перевірена експериментально авторська методика формування

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specialists in the information and digital educational environment led to a significant increase in the level of mastery of the system of theoretical knowledge in the disciplines of optional and mandatory educational components, methods of conducting training classes. The obtained quantitative indicators of the communicative competence of future specialists in the information and digital educational environment, introduced innovations in the theory and practice of pedagogy, methodology and training methods in the conditions of digitalization showed the effectiveness of the author's method developed by us.

**Keywords:** communicative competence, future specialists, information and digital educational environment, virtual educational environment, cloud services.

## Introduction

To ensure an effective educational process in institutions of higher education, it is necessary to focus on improving speaking skills and skills for the correct and expressive formation of thoughts and on the communicative comprehensive development of students of education, strengthening the connection with the future professional activity of students of higher education and the content of education (Hryban et al., 2022).

One of the main requirements of modern society for a competitive specialist in any field is the possession of a complex of values, attitudes, skills, abilities, and knowledge – possession of key competencies in communication in a foreign and native language; acquisition of learning skills, civil and social spheres; mathematics and basic concepts in the field of technology, science; computer literacy; entrepreneurship and innovation, cultural sphere.

The improvement of information and communication technologies, and the constant development of a modern information society, require a review of teaching organizations and teaching tools from teachers. Thus, among the current methods of language teaching, the computer-oriented one is singled out (Bloch, 2012) a process that allows students to constantly improve their level of communicative competence thanks to the unique functionality of the information and digital educational environment, which ensures the mobility of the learning process and the integrability of foreign languages and the native language of students, sources of obtaining data within the framework of the profession, real communication in a professional environment, which is important for a successful existence in the information and digital educational environment.

In the system of human relations, the communicative competence of future specialists in the information and digital educational environment is one of the main components of a person's professional adaptability, a high level of professional activity of specialists.

Therefore, there was a need to develop the communicative competence of future specialists, to learn the language as a means of professional communication in the information and digital educational environment, which is necessary for ensuring a person's professional communication.

Considering the communicative competence of future specialists in the information and digital educational environment in the article, we focused on the main aspects, such as:

комунікативної компетентності майбутніх фахівців в інформаційно-цифровому освітньому середовищі, призвела до значного зростання рівня опанування системи теоретичних знань у дисциплінах вибіркової та обов'язкової освітніх компонентів, методики проведення навчальних занять. Отримані кількісні показники комунікативної компетентності майбутніх фахівців в інформаційно-цифровому освітньому середовищі, внесені нововведення у теорію та практику педагогіки, методології та методику навчання в умовах цифровізації показав ефективність розробленої нами авторської методики.

**Ключові слова:** комунікативна компетентність, майбутні фахівці, інформаційно-цифрове освітнє середовище, віртуальне навчальне середовище, хмарні сервіси.

- The importance of communicative competence for future specialists and the importance of principles for improving communication skills to bring them to the level of competence, a component of communicative competence.
- Formation of an information and digital educational environment to create favorable conditions for the formation of communicative competence of future specialists.
- The main organizational forms of training for the formation of communicative competence of future specialists in the information and digital educational environment of a higher school.
- The role of ICT and virtual educational environment and media educational technologies in the formation of communicative competence of future specialists.
- An experimental study on the communicative competence of future specialists in the information and digital educational environment.

## Literature Review

The communicative competence of future specialists is very important in the information and digital educational environment since the student's activity is directly related to communication with colleagues, stakeholders, and teachers. Therefore, scientists devote their research to the development of the communicative competence of future specialists, language learning, and pedagogical communication as a means of professional communication in the information-digital educational environment, which is a necessity for ensuring professional communication in the context of professional adaptation of future specialists.

Thus, H. Dehtiarova, & L. Rudenko (2010) consider the ways of developing the communicative competence of specialists and the problems of pedagogical communication of a person in the context of professional adaptation. Methodical support has been developed, the questions and tasks of which are aimed at logical, consistent, meaningful assimilation of knowledge for use in professional activities, and self-control of students; for future specialists in the field of service, the program of the course "Fundamentals of the psychology of professional communication" is presented.

L. Kaidalova (2016) devoted her research to the introduction of interactive technologies into the professional training of future medical and pharmaceutical specialists to form in higher education institutions the communicative competence of future specialists for working in an information-digital educational environment, developing personal and professional important qualities. In institutions of higher education, she has developed ways to ensure an effective educational process, which is focused on improving speech skills, comprehensive communicative development of students, strengthening the connection with future professional activities and the content of education, and the ability to convey thoughts clearly and correctly.

Learning the language as a means of professional communication is a necessity for the formation of communicative competence of future specialists in the information and digital educational environment while ensuring professional communication. Therefore, the research of scientists H. Hryban, O. Skoryi, D. Opanchuk, & N. Kosenko (2022) consists of the implementation and justification of pedagogical conditions for the formation of communicative competence in future coaches from various sports. The scientists concluded that "the formation of professional and communicative competencies of future coaches in the process of professional training is aimed at acquiring thorough knowledge, abilities, and skills from the disciplines of the main educational component of the curriculum", where both trainings of athletes and active learning methods were used.

The research of S. Shevchenko, & N. Falko (2020) is devoted to the problem of developing communicative competence in future psychologists. The relevance of research in the information and digital educational environment is due to the increased requirements for the professional competencies of future psychologists. It has been proven that "the presence of certain knowledge, abilities, and skills of psychology students ensures the effective implementation of the communicative process in professional activity, enables the specialist to successfully enter into various types of (verbal and non-verbal, oral and written) contacts to solve communicative tasks (transfer of information, conducting consultations, establishing and maintaining contacts and others)".

R. Kotsiuba (2020) developed methodological recommendations related to the development and formation of foreign language communicative competence of future medical specialists, which are built on the subject

of educational modules adapted to work in an information-digital educational environment and, to develop foreign language communicative competence of future specialists, devoted to the methodological principles of using computer-oriented methods of treatment.

O. Sukhomlyn (2022) searches for the innovativeness of the process of digitalization of education; and considers the relevance of digital competence in the system of higher education and ways of its formation in the process of professional training of future philologists. In the information and digital educational environment, the skills of students who possess digital competence and communicative competence are summarized more effectively, which encourages the individual to develop the digital and communicative competence of students, as well as didactic tasks, the methodical potential of information technologies, which act with the help of the application of information technologies, are analyzed.

O. Zhernovnikova, L. Peretiaga, A. Kovtun, M. Korduban, O. Nalyvaiko, & N. Nalyvaiko (2020) focused research on the formation of communicative and digital competence of future teachers using gamification. For research in the educational process, mobile applications were chosen: ClassDojo, DuoLingo, Brainscape, Coursera, and Socrative. The technology of forming the communicative and digital competence of future teachers using gamification was developed, theoretically grounded and implemented, which was implemented under the following conditions: during the processing of educational information – integration of means gamification in the process of training future teachers; selection of effective educational digital technologies; when working with digital educational technologies, the use of organizational and technical methods and measures to ensure information security; for the development of digital educational projects – the use of educational platforms.

S. Tolochko (2021) researched and substantiated the directions of digitalization of institutions of higher education, vocational and technical, and general secondary education and highlighted the specifics and essence of the digital competence of teachers in the conditions of distance learning. In this process, the role of the communicative competence of future specialists in the information and digital educational environment is shown.

N. Nahorna, V. Nahorny, & T. Kaplaushenko (2020) to determine the level of development of communication skills in pharmacists, outlined the problems of researching psychological features, proved the need for: moving away from traditional professional training, the relevance of forming the communication competence of future specialists, in the information and digital educational environment – general training of competent pharmacy specialists, formation of their competencies and qualities by the new specialist model.

So, we see that the communicative competence of future specialists is very important in the information and digital educational environment, since the student's activity is directly related to communication with colleagues, stakeholders, and teachers. Therefore, scientists devote their research to the communicative competence of specialists of various specialties, learning their language, and pedagogical communication in an information-digital educational environment, which is a necessity for ensuring professional communication in the context of professional adaptation of future specialists.

***The purpose of the study:*** formation of communicative competence of future specialists in the information and digital educational environment using the developed author's methodology.

## Methodology

During the research, we used the following methods to achieve the goal: analysis of literary sources, conversation, pedagogical observation, questionnaires, assessment of students' knowledge, and pedagogical formative experiment to evaluate the effectiveness of the means of forming the communicative competence of future specialists in the information and digital educational environment, to analyze the reliability research results and for processing digital material – methods of mathematical statistics.

The research was conducted in 2022-2023. 68 students of higher education took part in the experiment. In the students of the experimental group (33 respondents), communicative competence was formed in the process of learning based on the author's methodology. Applicants of the control group (35 respondents) studied according to the existing educational program of the university.

To improve and develop the communicative competence of the future experts of the experimental group, we created favorable conditions in the educational process of the higher education institution.

The implemented author's method of forming the communicative competence of future specialists in the information and digital educational environment led to a significant increase in the level of mastery of the system of theoretical knowledge in the disciplines of optional and mandatory educational components, methods of conducting training classes.

Studies have confirmed that theoretical knowledge determined the level of needs of future specialists for mastering communicative competencies and became the basis for activating the consciousness of those seeking higher education.

The assimilation of theoretical knowledge stimulated the students of higher education of the experimental group to accumulate individual information experience, analysis, and generalization of facts, and conclusions, activating their ability to systematize and retrospectively search for information, its synthesis, and analysis.

The formative stage of the experiment confirmed that the level of formation of the communicative competence of future specialists in the information and digital educational environment significantly increased in the experimental groups, while there were no significant changes in the students of the control groups.

## Results and Discussion

### **The importance of communicative competence for future specialists and the importance of principles for improving communication skills to bring them to the level of competence, a component of communicative competence.**

When preparing young people for life activities, communicative competence is recognized as the leading one in education, which is an indicator of the individual's adaptability to the assimilation of new social roles, to new living conditions, to interaction with the social and informational and digital educational environment, with various types of information and real objects.

The importance of the communicative competence of the future specialist is increasing in connection with the transition of education to the information and digital format of the educational environment, in connection with the impact on interaction, mutual understanding, and dialogue during education. Therefore, in the professional activity of a specialist, an important component is pedagogical communication, which is a means of ensuring the educational process and solving educational tasks between the teacher and students (Hryban et al., 2022).

To improve communication skills to the level of competence, it is necessary to adhere to the following principles:

- Continuity – a person always sends behavioral information non-verbally or verbally, therefore interpersonal communication is continuous;
- Purposefulness – people, pursuing certain goals, communicate with each other;
- Relativity – in the process of interaction, two scenarios are implemented: affect (to hate – from love), identification of the dominant participant, and therefore interpersonal communication is relative;
- Variability – depending on the perceived coding, communicative messages change (non-verbal or verbal symbols) and can be scripted, spontaneous, or constructed;
- Ethics – a person, in the process of communication, is inevitably guided by an ethical choice;
- Cultural diversity – communication depends on the gender, cultural affiliation of the participants, social status, age, education, and religious views (Dehtiarova & Rudenko, 2010).

The above principles are appropriate for interpersonal communication.

Components of communicative competence when analyzing the substantive issues of communicative competence:

- 1) Gnostic: a system of knowledge about the peculiarities of communication, the essence of communication, general cultural competence, and communication styles, which allows one to understand the interlocutor's associations, hidden contents, etc.;
- 2) Communicative: communicative skills, speech culture, which allows managing the situation of interaction with the subject of foreign language communication, establishing contact with the interlocutor; perceptually reflective skills, expressive, which provide the opportunity to understand oneself and to know the inner world of the communication partner;
- 3) Emotional: a high level of identification with the performed social and professional roles; interest in another person, humanistic approach to communication; willingness to engage in dialogic or personal relationships, developed reflection and empathy; psycho-emotional state of a person and positive self-concept.

M. Canale, & M. Swain (1980) divide the communicative competence of future specialists into the following components: strategic, sociolinguistic, grammatical, and discursive, and consider it as a synthesis of the system of skills, abilities, and knowledge necessary for communication between people.

### **Formation of an information and digital educational environment to create favorable conditions for the formation of communicative competence of future specialists.**

Based on the introduction of information and communication technologies and telecommunication means of communication, the information and digital educational environment of the institution of higher education is being created. "This is a holistic systematically organized informational and pedagogical open space, the components of which are informational, technical, educational and methodical, regulatory and legal, financial and economic, managerial support, and under certain organizational and pedagogical conditions, professional competence is formed in it learning according to an individual trajectory" (Kotsiuba, 2020).

Foreign researcher J. Egbert (2005) with the help of a computer, the language learning method (Computer-assisted language learning – CALL) is singled out as one of the leading methods, which has important functions: individual training and two-way training. Scientists use different terms to denote this method, which indicates the use of a computer in language learning and teaching, for example:

- Computer-mediated human communication (CMHC);
- Computer applications in second language acquisition (CASLA);
- Computer-mediated communication (CMC);
- Computer-assisted instruction (CAI);
- Web 2.0 tools;
- Social media;
- Internet-based language learning (IBLL);
- Mobile-oriented language learning (MALL);
- Online language learning (OLL);
- Google-assisted language learning (GALL);
- Technology-enhanced language learning (TELL).

These are different forms of technology-based language learning (TBLL).

It should be noted that the changes occurring in the formulation of the above terminology are adjusted with the progress of ICT and changes in foreign language teaching. J. Egbert (2005) analyzes the stages of formation of such an approach.

To form an informational and digital educational environment to create favorable conditions for the formation of communicative competence of future specialists I. Ivaniuk (2015) when studying in a computer-oriented environment the formation of multicultural competence of students, singles out the tools that are relevant in today's education. These methods are effective for creating favorable conditions for the formation of communicative competence of future specialists, solving the tasks of forming a specialist who is formed as a socially active and creative person and is ready for professional activity (Kotsiuba, 2020). Electronic teaching aids for language learning, such as computer training programs, electronic textbooks, manuals, etc., are of great importance for creating favorable conditions for the formation of communicative

competence of future specialists in the information and digital educational environment (Stratan-Artyshkova et al., 2022).

### **The main organizational forms of training for the formation of communicative competence of future specialists in the information and digital educational environment of a higher school.**

We will single out the main organizational forms of training that we use and have proven effective for the information and digital educational environment of a higher school: a seminar report of students using ICT, a webinar, a lecture using ICT, seminar classes on correction and testing of abilities and skills, knowledge using ICT, with the presentation of students' portfolios, research work using ICT (Plakhotnik et al., 2023).

### **The role of ICT and virtual educational environment and media educational technologies in the formation of communicative competence of future specialists.**

A virtual learning environment is important for the formation of the communicative competence of future specialists in the information and digital educational environment. We used the virtual educational environment as a software system that was created to support the educational process in distance education, where a special role, unlike a managed educational environment, by the individual goals, capabilities, work schedule, and training of students, is acquired by the possibility of managing the educational process of higher education schools, all subjects of educational activity.

To ensure the formation of the communicative competence of future specialists, a virtual learning environment is necessary, which should take into account all the necessary didactic properties of ICT.

We will single out the most effective didactic properties of computer-oriented learning tools for the formation of communicative competence of future specialists, which must be taken into account when creating a virtual learning environment:

- Information, manifested between the subjects of the educational process in the exchange of data;
- Adaptive, manifested in the organization of the demonstration of visual material, in maintaining the conditions for the learning process, ensuring a person-oriented approach to learning, independent work;
- Motivational, manifested in activation and stimulation of the cognitive activity of students of higher education;
- Interactive, which ensures the implementation of feedback and direct communication within the virtual educational environment, direct interaction of students of higher education with the educational tool;
- Compensatory, aimed at improving the quality of the educational process in the virtual educational environment through, for example, speeding up the work pace of those seeking higher education;
- Integrative, which involves the influence on the development of higher education students' abilities and skills to logically connect data obtained from different sources, select them, and analyze them;
- Administrative, aimed at providing feedback and assimilation and correction of the processes of data perception by students of higher education and organization and management of educational and cognitive activities of students of higher education;
- Controlling, which provides the possibility to monitor the educational activities of students of higher education and to carry out self-control;
- Evaluation, which allows the teacher to evaluate the achieved educational results and contributes to the self-evaluation of higher education applicants, establishing their compliance with the criteria and set tasks.

We believe that the main ICT necessary for the formation of communicative competence of future specialists are websites and blogs, Wikis and forums, electronic portfolios of two directions, and SpeakApps – for storing personal educational materials and for feedback with the teacher.

Wikis and forums, blogs, and websites provide an opportunity for students to work in groups, provide sources for finding the necessary information, allow discussion of professional problems, and contribute to the formation of communicative competence of future specialists.

We note the significance of the SpeakApps project for the formation of the communicative competence of future specialists, which focuses on the creation of an open and free online platform on which ICT (Moodle platform, SpeakApps Community, Tandem Support, Langblog Support, OER Support, Videochat Support)

are collected, which meet pedagogical goals and formation of communicative competence of future specialists; allow you to create teacher pages to monitor student learning and provide advice.

Virtual classes are supported by the SpeakApps platform, which facilitates easy access to innovative and interactive online tools for the purpose of forming the communicative competence of future specialists; provides access to tools and exercises for managing electronic manuals, synchronous educational activities of the student; allows subjects of educational activity to create a common space for the exchange of educational materials, ideas, methodologies.

The SpeakApps project program provides cross-country support for workshops, open source and other projects to share future innovations and resources.

SpeakApps tools are based on a cloud-based software-as-a-service model, which includes the learning management system Moodle, allows you to use SpeakApps tools through the cloud, covers the following modes:

- SpeakApps cloud mode;
- SpeakApps plugin mode, which allows the use and integration of SpeakApps tools into the client's learning platform, provided that it complies with the Global Learning Tools Interoperability specification.

These two modes are offered in two types of services.

1. Premium Service, which includes updates of tools and the educational platform, support in setting up tools and configurations, coverage described in the standard service of the educational platform; allows customization (the client's corporate image and logo), monitoring services, access to backup copies for students of higher education, periodic reports, the possibility of arranging special developments, individual support service.
2. Standard Service, which guarantees clients access to educational platforms and the most stable versions of tools; includes individual support service, client access to backup copies, monitoring, but does not offer special adaptations, graphics settings, individual development.

The SpeakApps project affects the formation of communicative competence of future professionals, giving teachers the opportunity to use SpeakApps Open Educational Resource materials in their online or blended learning approaches.

Mahara e-portfolio SpeakApps is a service that is part of a class based on the Moodle platform (Kotsiuba, 2020) and which we used for students to create electronic portfolios.

In order to form the communicative competence of future specialists, we constantly used cloud services, which provide students with a number of services:

- Database-as-a-Service ;
- Platform-as-a-Service;
- Storage-as-a-Service;
- Application-as-a-Service;
- Integration-as-a-Service;
- Process-as-a-Service;
- Management/Governance-as-a-Service;
- Testing-as-a-Service;
- Infrastructure-as-a-Service.

Google, Microsoft 365, Dropbox, etc. are among the most common cloud services in the educational field (Kamenska & Bokshyts, 2022).

Communicative competence presupposes the student's awareness of the essence, features of communication, goals, structure, means, possession of communicative skills and abilities, etc. A specialist should have inherent qualities (psychological, individual), which provide the personality with the desire to

constantly improve the communicative side of professional activity, awareness of the importance of effective professional communication (communicative orientation), give orientation to the main value – the personality of a person (humane position), and also give in in the process of communication, the ability to creatively, non-standardly solve communicative tasks that arise (communicative creativity). To a large extent, the style of communication is characterized by the culture of communication, external culture, system of elements, business etiquette, culture of behavior. "Communicative competence ensures mutual understanding, trust in relationships, efficiency in solving tasks" (Nahorna et al., 2020).

For this process, when forming the communicative competence of future specialists in the information and digital educational environment, pedagogical conditions with the use of media educational technologies are important, namely:

- Organization of the educational process with the use of media-educational technologies;
- Combination and selection of various learning technologies;
- Application of innovative and traditional media educational technologies;
- Promptness in providing information;
- Adaptation of students to the educational process using remote technologies;
- Provision of access to information support;
- Creation of a complex of educational and methodological support;
- Use of interdisciplinary connections;
- Motivation of higher education seekers and their stimulation of the ability to use various learning technologies and to know the professional mastery of these technologies;
- Provision of favorable learning conditions for self-improvement and self-development of students of higher education (Polishchuk et al., 2022).

Therefore, in the formation of communicative competence of future specialists in the information and digital educational environment, a necessary element is the use of media educational technologies in the educational process (Kamenska & Bokshyts, 2022).

Speaking about the interactive aspect of communicative competence, we pay attention to such features of communication of future specialists as friendliness with partners and colleagues in relationships, their unconditional personal acceptance, the ability to establish an optimal social-psychological distance, combine demandingness and independence, ensure personal openness and status subordination (Burlaienko, 2021).

### **Experimental research.**

We used the following research methods to achieve the goal: analysis of literary sources, conversation, pedagogical observation, questionnaires, assessment of students' knowledge, pedagogical formative experiment to evaluate the effectiveness of means of forming the communicative competence of future specialists in the information and digital educational environment, to analyze the reliability of the research results and to processing of digital material – methods of mathematical statistics.

The research was conducted in 2022-2023. 68 students of higher education took part in the experiment. In the students of the experimental group (33 respondents), communicative competence was formed in the process of learning based on the author's methodology. Applicants of the control group (35 respondents) studied according to the existing educational program of the university.

To improve and develop the communicative competence of future specialists in the educational process of a higher education institution, we have created favorable conditions that can ensure:

- 1) The level of culture of each student;
- 2) Full-fledged development in the information and digital educational environment of each of the elements of communicative competence;
- 3) Positive influence of social space;
- 4) The role of ICT and virtual educational environment and media educational technologies in the formation of communicative competence of future specialists;
- 5) Organizational forms of training for the formation of communicative competence of future specialists in the information and digital educational environment of a higher school;

6) Pedagogical conditions with the use of media educational technologies and their functions.

We carried out the formation of professional and communicative competences of the applicants in a specific educational space, taking into account the proposed favorable conditions.

To form communicative competences of future specialists, we used such forms of training as practical classes, lectures, individual work, industrial practice, independent work where active learning methods were used in the created informational and digital educational environment.

The students of the experimental group clearly understood the importance of communicative competence for future professional activity and the importance of principles for improving communication skills in order to bring them to the level of competence, they knew the components of communicative competence. With the help of the main organizational forms of education, the students of the experimental group were formed communicative competence in the information and digital educational environment of the higher school, which was necessary to create favorable conditions for the formation of communicative competence of future specialists.

ICT, virtual learning environment and media educational technologies were of great importance for the formation of communicative competence among the students of the experimental group.

During the research, we will identify the most effective didactic properties of computer-oriented learning tools for the formation of communicative competence of future specialists, which we took into account when creating a virtual learning environment.

In order to form the communicative competence of future specialists, we constantly used cloud services. An important argument in the formation of communicative competence of future specialists in the information and digital educational environment was the use of media educational technologies in the experimental group.

For this process, in the formation of communicative competence of future specialists in the information and digital educational environment, pedagogical conditions with the use of media educational technologies, which performed the following functions, were important: activation of students' educational and cognitive activities; informatization of the educational process; interactivity of learning; motivation to learn from future specialists; increasing the efficiency of assimilation of educational material by students of higher education; monitoring of the educational process; participation of students of higher education in video conferences; development of creative activity; academic mobility of students. The formation of communicative competence was carried out on the basis of B. Bloom's taxonomy of cognitive activity. According to B. Bloom's theory, the theory of systematization and classification of complexly organized areas of activity that have a hierarchical structure, we took into account six levels of cognition: understanding, knowledge, use, synthesis, analysis, evaluation.

Such an author's method contributed to the formation of skills, knowledge, communication abilities of education seekers, necessary for the formation of communicative competence of future specialists in the information and digital educational environment.

The special professional competences of specialists were formed closely with the communicative competences of future specialists in the information and digital educational environment, and this was a single joint process.

The conducted ascertainment experiment showed that:

- 16.3% of future specialists have a high level of communicative competence;
- 37.3% of future specialists have an average level of communicative competence;
- 46.4% of future specialists have a low level of communicative competence.

During the formative experiment, the introduction of the author's method of communicative competence of future specialists in the information and digital educational environment in the experimental group led to an increase in the number of higher education applicants:

- 35.2% – with a high level of communication competence formation;
- 51.5% – with an average level of communicative competence;
- 13.3% – low level of formation of communicative competence.

There were no significant changes in the control group.

The implemented author's method of forming the communicative competence of future specialists in the information and digital educational environment led to a significant increase in the level of mastery of the system of theoretical knowledge in the disciplines of optional and mandatory educational components, methods of conducting training classes.

Studies have confirmed that theoretical knowledge determined the level of needs of future specialists for mastering communicative competences and became the basis for activating the consciousness of those seeking higher education.

The assimilation of theoretical knowledge stimulated students of higher education to accumulate individual information experience, analysis and generalization of facts, conclusions, activated their ability to systematize and retrospectively search for information, its synthesis and analysis.

The formative stage of the experiment confirmed that the level of formation of the communicative competence of future specialists in the information and digital educational environment has significantly increased, while there are no significant changes in the students of the control groups.

## Conclusions

The value of communicative competence for future specialists is proven and the importance of principles for improving communication skills with the aim of bringing them to the level of competence is shown, the components of communicative competence are considered. The role of the information and digital educational environment for creating favorable conditions for the formation of communicative competence of future specialists is shown. The main organizational forms of training for the formation of communicative competence of future specialists in the information and digital educational environment of a higher school are substantiated. The role of ICT and virtual educational environment and media educational technologies in the formation of communicative competence of future specialists is shown. The most effective didactic properties of computer-oriented learning tools for the formation of communicative competence of future specialists are highlighted, which must be taken into account when creating a virtual learning environment.

In order to form the communicative competence of future specialists, the necessity of using cloud services, which provide essential services to students, is shown.

An important argument in the formation of the communicative competence of future specialists in the information and digital educational environment is the use of media educational technologies. For this process, in the formation of the communicative competence of future specialists in the information and digital educational environment, the proposed pedagogical conditions with the use of media educational technologies are important.

During the research, we used the following methods to achieve the goal: analysis of literary sources, conversation, pedagogical observation, questionnaires, assessment of students' knowledge, pedagogical formative experiment to evaluate the effectiveness of the means of forming the communicative competence of future specialists in the information and digital educational environment, to analyze the reliability research results and for processing digital material – methods of mathematical statistics.

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Studies have confirmed that theoretical knowledge determined the level of needs of future specialists for mastering communicative competences and became the basis for activating the consciousness of those seeking higher education.

The assimilation of theoretical knowledge stimulated the students of higher education of the experimental group to accumulate individual information experience, analysis and generalization of facts, conclusions, activated their ability to systematize and retrospectively search for information, its synthesis and analysis.

The formative stage of the experiment confirmed that the level of formation of communicative competence of future specialists in the information and digital educational environment significantly increased in the experimental groups, while there were no significant changes in the students of the control groups.

Further research is needed to substantiate the directions of digitization of higher education institutions.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.15>

How to Cite:

Folomieieva, N., Koriakin, O., Matsenko, L., Siaska, I., & Fed, I. (2024). Problem-based learning in higher education: a path towards training innovative and competent specialists. *Amazonia Investiga*, 13(77), 201-217. <https://doi.org/10.34069/AI/2024.77.05.15>

## Problem-based learning in higher education: a path towards training innovative and competent specialists

### Підготовка фахівців у вищій школі засобами проблемного навчання

Received: April 3, 2024

Accepted: May 20, 2024

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#### Abstract

This article explores the theoretical and practical aspects of problem-based learning (PBL) in higher education. It investigates the content, requirements, and methods for creating problem scenarios, outlining the criteria, stages, and forms of PBL. The study examines the role of key components in PBL and how to effectively integrate them into the educational process. It also analyzes the characteristics, principles, and structural elements of PBL in the context of specialist training. Additionally, the article proposes a classification of problem scenarios and highlights the differences between PBL and traditional learning approaches. The research emphasizes the importance of incorporating integrative technology, virtual reality, and digital educational resources into PBL. An experimental

#### Анотація

У статті розглянуто теоретичні та практичні аспекти проблемного навчання у вищій освіті. Досліджується зміст, вимоги та методи створення сценаріїв проблем, окреслюючи критерії, етапи та форми проблемного навчання. Дослідження розглядає роль ключових компонентів у проблемному навчанні та те, як їх ефективно інтегрувати в навчальний процес. У статті аналізується характеристики, принципи та структурні елементи проблемного навчання в контексті підготовки фахівців. Крім того, у статті пропонується класифікація проблемних сценаріїв і висвітлюються відмінності між проблемного навчання і традиційними підходами до навчання. Дослідження підкреслює важливість включення

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study was conducted to investigate educators' perspectives on the feasibility of implementing PBL in higher education and to examine the impact of a PBL program on students' knowledge acquisition. The findings suggest that PBL is a promising approach for enhancing the learning process and fostering the development of competent specialists.

**Keywords:** problem-based learning, higher education specialist training, problem scenarios, educational technology, virtual reality, digital educational resources.

інтегративних технологій, віртуальної реальності та цифрових освітніх ресурсів у проблемному навчанні. Було проведено експериментальне дослідження, щоб дослідити погляди педагогів на доцільність впровадження проблемного навчання у вищій освіті та вивчити вплив програми проблемного навчання на засвоєння знань студентами. Результати свідчать про те, що проблемне навчання є перспективним підходом для покращення процесу навчання та сприяння розвитку компетентних спеціалістів.

**Ключові слова:** проблемне навчання, підготовка спеціалістів вищої освіти, проблемні сценарії, освітні технології, віртуальна реальність, цифрові освітні ресурси.

## Introduction

Preparing qualified, competitive specialists is a key task of higher education. In the course of their professional activities, specialists must be able to critically evaluate information to use it to achieve professional goals, as well as specialists in the implementation of professional tasks must be able to quickly make correct and effective decisions in the process of creatively rethinking needs, strive for self-improvement and self-education, be able to personal and professional growth, to improve skills and abilities throughout life.

It is necessary to use effective pedagogical methods and techniques for training such specialists. Connection with the fact that traditional teaching methods are aimed at the reproductive assimilation of knowledge by students because we observe the acquisition of knowledge for its reproduction and not the application of knowledge in professional activities. In the context of obtaining a higher education, it is this trend that requires the search for more effective training in a higher education institution. Therefore, teachers of higher education institutions intensively implement innovative educational technologies, which more effectively influence the motivation to activate educational and cognitive processes, promote the development of critical and independent thinking in the process of educational activities of students, and also lead to the acquisition of skills and knowledge (Valentieva et al., 2022).

Therefore, training that takes place intending to increase the effectiveness of the educational activity of specialists, which prompts the student to make a certain decision, stimulates comparison, analysis, and comparison of new information, which is the most effective for achieving the set goal, becomes especially significant. It is this approach to the formation of the professional competence of future qualified, competitive specialists that is implemented in the context of the implementation of problem-based learning. Therefore, the training of specialists using problem-based learning is important and necessary on a global educational scale. The relevance of the research is determined by the definition of effective learning technologies, in particular, problem-based learning, in the process of obtaining higher education in the modern period of the formation of world society.

The application of problem-based learning in the training of specialists in higher education is currently a relevant issue of the theory and methodology of learning in the educational process. Based on this, we considered the following questions in the article:

1. Content, requirements, and methods of creating problem situations.
2. Criterion features, stages of implementation of problem-based learning, and forms of problem-based learning.
3. The main component of problem-based learning and compliance with the conditions of the organization of the educational process to implement problem-based learning
4. Traits, principles, elements, structural units, components, requirements of problem-based learning.
5. Classification of types of problem situations during the educational process to achieve didactic goals.

6. Peculiarities of problem-based learning compared to traditional learning.
7. Use of integrative technology, virtual reality, and informational materials in problem-based learning.
8. Experimentally verified problem-based learning in the Training of specialists in higher education.

### Literature Review

Modernization of the content and forms of organization of the educational process, constant improvement of the quality of education, and introduction and development of new educational innovations – is one of the priority directions of the state policy of all countries of the world to integrate higher education into the European educational space. Today, the formation of knowledge, skills, and traditional views on education do not satisfy the demands of modern society. That is why so much attention is paid to innovative teaching methods in the educational process of higher education.

S. Khursenko (2023) considers problem-based learning as a technology for developing education, aimed at the formation and methods of research activity, mental abilities of the individual, active assimilation of knowledge, development of creativity, and involvement in scientific research of students. In her research, the scientist clearly defined the purpose of problem-based learning, emphasized the development of human thinking; showed ways to improve the quality of education, ways to use innovative teaching methods that contribute to the development of the student's cognitive interests and contribute to better assimilation of educational material by students; highlights the advantages of problem-based learning; highlights the types and structure of problem-based learning, shows several advantages and features of problem-based learning compared to traditional learning.

The study of T. Valentieva, Yu. Smolianko, & Yu. Semeniako (2022). The author's research consists of clarifying the concept of effective educational technology – problem-based learning; determining the specifics of conducting a lecture with problematic teaching; highlighting the peculiarities of problem-based learning; in the definition of problematic tasks and issues, the analysis of essential features of problem-based learning as educational technology, in the analysis of the structural components of problem-based teaching; in the peculiarities of creating a problematic situation as one of the main elements of technology; substantiation of the most effective means to achieve the goal in the educational process and the expediency of conducting a problem-based lecture.

R. Hernández, & S. Moreno (2021) describe a qualifying research experience with natural science teachers, which aimed to take appropriate school work strategy and thus consider alternatives that favor the development of skills, critical thinking, and construction of school scientific knowledge; in addition to recognizing the value of teamwork to favor the development of learning.

N. Myronchuk (2016), in the context-professional training of future teachers of a higher school, the functional and meaningful purpose of problematic professional-pedagogical situations is clarified, the criteria for the development and types of situations of self-organization of the teacher's activity are determined, the methods of creating problematic professional-pedagogical situations are substantiated.

L. Baranovska, & L. Morska (2022) in the system of continuing education highlighted the experience of scientists in the use of innovative educational technologies, in the training of specialists of various educational levels, they substantiated the theoretical, historical, and methodological foundations of the introduction of innovations, clarified the definitions of key concepts, showed the importance of introducing into scientific circulation new innovative – technological, innovative and educational terms, offered the experience of using innovative educational technologies in the professional training of future workers in the socio-economic sphere, teachers, military pilots, civil aviation specialists, engineers, developed methodical and practical recommendations regarding the development of critical thinking of students of higher education, in the conditions of educational information environment of a higher education institution – creation of a student's individual educational trajectory.

The relevance of the research topic is strengthened by the need to resolve a number of contradictions revealed in the research process between:

- The public demand for the training of specialists in higher education on the basis of the competence approach and the insufficient use of the potential of problem-based learning to achieve the programmatic results of training according to the relevant educational programs;
- Recognition of the role, importance, and functions of problem-based learning in the organization of the educational process in higher education institutions and the limited use of the theory and experience of problem-based learning in the practice of higher education;
- The existence of developed general didactic conceptual foundations of problem-based learning and the lack of a methodical system for its implementation in higher education.

Thus, the expediency of a comprehensive study of the organization of problem-based learning in institutions of higher education, as well as the absence of a holistic pedagogical study that would synthesize the evolution of the idea of problem-based learning, necessitate a comprehensive study of the problem of training specialists in higher education.

**The aim of the study.** With the aim of more effective training in a higher education institution, to prove the need for training specialists using problem-based learning and to clarify the respondents' positions on the feasibility of using problem-based learning in the educational process of higher education, to investigate the impact of problem-based learning on the effectiveness of learning program material.

### Methodology

In the study of the need to train specialists using problem-based learning and the influence of problem-based learning on the effectiveness of assimilation of program material, appropriate methods were used: a systematic analysis of scientific, pedagogical, and psychological literature on the research problem – for the further perspective of the research and identification and assessment of the state of study of the problem; combination and comparison, abstraction and concretization, induction and deduction, generalization and systematization of theoretical and methodological approaches in the process of revealing the essence of research concepts; analysis of the experience of implementing problem-based learning in the educational process of a higher school.

In the process of experimental work, we set the task of clarifying the position of the respondents regarding the feasibility of using problem-based learning in the educational process of a higher school.

During the experimental study, we created control and experimental groups and developed an experimental program that made it possible to create a favorable emotional climate in the experimental group, with the help of this program, the students felt that the group was a single team. During the educational process, the respondents of the experimental group learned to master the methods of problem-based learning, and the material of the classes contributed to the development of multiple competencies in them, in particular, key, psychosocial, subject-related.

During educational activities, EG students used integrative technology and virtual reality, informational materials in problem-based learning.

We organized and conducted a survey in which 17 teachers and 98 students participated.

After the introduction of the developed experimental program into the educational process of EG, we conducted a formal stage of the experiment to study the impact of problem-based learning on the effectiveness of knowledge acquisition by students. Traditional classes were held in the control group, problem situations were used in the experimental group, which were based on the active participation of the students themselves in the process of acquiring knowledge. EG students used integrative technology and virtual reality, informational materials in problem-based learning.

To establish the impact of problem situations on the completeness of students' knowledge and their depth, respondents were offered situations that helped to reproduce their knowledge in practice.

In the process of research, the respondents of the experimental group showed a significant interest (which increased noticeably) in learning and were actively involved in the proposed types of work.

Better assimilation of educational material and involvement of EG respondents in active search was facilitated by the use of problem situations. The results of the questionnaire data give reason to say that in most cases respondents (89.9%) have a positive attitude towards the implementation of the problem-based approach in classes and consider it necessary to use problem-based learning methods. The results of the study indicate positive changes in the experimental group – an increase in the number of respondents with a high level of knowledge acquisition and a decrease in the number of respondents with a low level of knowledge.

When determining the sample of subjects, the general specificity of the subject of the study was taken into account. The total sample size is 116 subjects. When forming the sample, the criteria of meaningfulness, representativeness, and equivalence were taken into account. The sample was formed by random selection using the technical procedure for calculating the selection step.

The reliability and validity of the obtained results, the objectivity of their assessment was ensured by the methodological soundness of the initial positions and the qualitative mechanism for evaluating the quality under study, the use of a complex of complementary research methods, and the involvement of a group of respondents from a higher educational institution in the analysis of its results.

To assess the homogeneity of experimental and control data, statistical processing was performed using MS Excel and SPSS (Statistical Package for Social Science).

Research relies heavily on the accuracy and reliability of the data. In the framework of research work, the quality of data collection and analysis not only adds weight to the research, but also contributes to the formation of sound conclusions, which is the key to academic success.

The following digital data collection tools were useful in the study:

- Google Forms - a simple tool for creating surveys that allows you to collect data from respondents, create different types of questions and collect answers in spreadsheets.
- SurveyMonkey - a modern survey tool that offers a wide range of customization options and analytical tools for analyzing the collected data.
- JSTOR, Google Scholar, and other academic search engines to provide access to scholarly articles, books, and other academic resources that may be useful for literature review and theoretical data collection.
- Zotero or Mendeley - bibliography management programs that help organize research materials, store references, and format bibliographies and citations according to different citation styles.
- Microsoft Excel or Google Sheets - spreadsheets are useful for organizing and analyzing collected data when working with quantitative data.
- SPSS, R or Python for more advanced data analysis, for statistical analysis and processing of volumes of data.

## Results and Discussion

### 1. Content, requirements, and methods of creating problem situations.

Formation of the methodology of creative reflection of world perception in future specialists is an important task of higher education. Human creativity contributes to discoveries in the global space, which in the process of development of society initiate innovation, which is a reflection of new methods, facts, and the formation of non-standard solutions. With this approach, problem-based learning technology is an important educational tool – the result of non-standard methods and approaches in decision-making, as a motivational and cognitive activity.

Scientists interpret problem-based learning as "a system of techniques that ensure purposeful actions of the teacher to organize the inclusion of the mechanisms of thinking and behavior of students with the help of problem situations" (Aleksiuk, 1998).

If students have intellectual capabilities to solve the problem and there is a cognitive need, then a problematic situation arises when there is a difficulty, a contradiction between new and old knowledge,

unknown and known, requirements and conditions. At the same time, the previous experience, which would be useful, does not contain a ready-made algorithm. It is necessary to develop a new strategy of action, different from the previous one, to overcome these difficulties.

Let's highlight the requirements that the teacher should be guided by when formulating and identifying problem situations:

- Focus on maximum independence of cognitive activity;
- Not to present the truth in a finished form, but to demonstrate the revealed contradictions in the development of this or that phenomenon;
- Take into account the main didactic principles (scientific, accessible, clear, systematic, etc.).

A problematic situation arises with such content that contains unknown and known elements. A problematic situation occurs most often with limited information when there are several options for solving the problem and there is a lack of initial data. The teacher must teach the educational material in such a way that it involves the problem situation, promotes the emergence of a special type of thinking interaction, and causes the students to have a cognitive need. Informational and cognitive contradiction is one of the structural psychological elements of a problem situation, without which the problem situation is impossible.

There are different ways to create problematic situations:

- Detection of contradictions in practical activities;
- A conflict of contradictions, which involves the urge to make an independent decision;
- Proposal to consider the problematic situation from different positions;
- Resolution of the issue and presentation of various ways of implementation;
- Encouragement to carry out one's own generalization, comparison, and conclusions.

First of all, a problematic situation is a state that arises as a result of meaningful interaction of a student of higher education with educational material. The basis for creating any problem situations is the need: cognitive-communicative, problem-communicative, professional.

Addressing problem situations requires compliance with certain requirements in the educational process:

- 1) Taking into account the psychophysiological characteristics of the student;
- 2) Definition of the goal – the task will contribute to the formation of skills and abilities, assimilation of new knowledge;
- 3) Compliance with the intellectual development of the student of higher education;
- 4) Adaptability to the demands of society, and real problems;
- 5) Presence of an interdisciplinary nature;
- 6) Availability as a result of the analysis of a complex solution and generalization of the studied material;
- 7) Establishment of partnership relations between the student and the teacher;
- 8) Motivation for self-improvement and self-education;
- 9) Stimulation of students' cognitive activity, giving them independence and freedom of choice (Dmitrenko, 2016).

The emergence of a pedagogical problem stimulates interest in learning, which to make an effective decision encourages creative rethinking and, as a result, forms problematic tasks in the process of mental activity to solve the corresponding problem. In solving the problem, there is an intrinsic interest based on such a concept. Internal interest is a factor in effective learning and the intensity of the educational process. Each student, in achieving the results of his interest, strives to surpass himself and, as a result, the cognitive motivation of the individual is formed as a driving factor in the educational field of new educational approaches.

## **2. Criterion features, stages of implementation of problem-based learning, and forms of problem-based learning.**

Problem-based learning involves several ways:

- Awareness of the existing problem;

- Solving the problem with the help of well-founded hypotheses;
- Verification and decision-making.

Problem-based learning is carried out in stages:

- Encouragement to accumulate knowledge and thinking operations;
- Creating a situation that is a study of student behavior and problems;
- Actualization of necessary knowledge, hypothesis analysis;
- To solve a problem situation – designing an action plan;
- To create conditions for the realization of their goals – determination of organizational and pedagogical conditions (Maksymenko, 2013).

In the context of problem-based learning, the organization of learning involves criterion features. Important is the knowledge that forms the topics of sections and courses, is the structure of the educational subject. This is the importance of content. The availability of educational material is also necessary (Budnyk et al., 2022).

The communication of facts and ways of presenting them, which the teacher systematically creates and describes by creating problem situations, is an essential feature of the problem-based approach in education. problem-based approach provides an opportunity to independently solve any issue in the process of educational activity.

There are three most important forms of problem-based learning in institutions of higher education:

- Problem-based learning during a lecture session, where students only accompany the teacher's solution to the problem, which is presented by the teacher as the formation of a problematic issue and the solution of this issue by him;
- Problem-based learning during a seminar, practical, lecture session, or heuristic conversation, where the work involves the definition of a previous problem, which is solved based on the knowledge of the students themselves and in the context of a purposeful solution to the task creates conditions for intellectual search, which is a sign of partial search activity;
- Problem-based learning during the student's research activity, which involves solving the problem and putting forward the student's own formulation of the problem.

### **3. The main component of problem-based learning and compliance with the conditions of the organization of the educational process to implement problem-based learning**

A problem situation has been created that requires the search for new methods of action or knowledge to achieve tasks and solve certain issues that arise when a problem situation arises, which is the main component of problem-based learning (Rojas Bahamón et al., 2019).

Problem situations are formed in different ways:

- Emergence in the process of analysis of various phenomena, facts, and perceptions, which must be theoretically substantiated;
- Arising in the process of conflicting situations, in the process of learning or life;
- Arising in the process of creating research goals;
- Arising when determining certain phenomena or facts in the process of stimulating analytical thinking.

The creation of a problem situation involves the comparison of facts, juxtaposition, and application and when solving the specified problem encourages logical thinking.

Thus, in the form of a problem statement, educational and cognitive activity encourages future specialists:

- To the formation of own pedagogical beliefs based on generalization, systematization, analysis results, and creative interpretation of existing knowledge;
- To creative and creative combination of theories, pedagogical ideas, and concepts;

- To the creative formation of the ability to determine the truth in the process of discussion (justification, assumptions, determination of one's own position, unbiased listening to the opinion of others, etc.).

We claim that problem-based learning is an educational technology; the most important component of problem-based learning is a "problem situation" with its specific functional characteristics, which, when organizing specific actions of students, combines the systematized actions of the teacher and exists when conducting classes in the context of creating a problem situation (Valentieva et al., 2022).

The implementation of problem-based learning in education requires compliance with the conditions of the organization of the educational process of a higher school:

- 1) A high level of education and the level of professional training of the teacher (mastery of problem-based learning methods and fluency in the educational material of the subject);
- 2) Preparedness of the audience: mastery of techniques of analytical activity; the presence of interest in the proposed problem, motivation; preliminary theoretical training to find an unknown result or a way to solve a problem;
- 3) To create problem situations – scientific and methodological support of the educational process;
- 4) Taking into account the topic, the specifics of the academic discipline, and the time allocated for the study of a certain topic (Baranovska, 2013).

#### **4. Traits, principles, elements, structural units, components, requirements of problem-based learning.**

Characteristic features of problem-based learning are:

- Activation of cognitive activity;
- Creative approach to information and activities;
- Formation of independence;
- Dialogue as a form of joint research work;
- Justification and proof of approaches and personal opinions to activities;
- Reflection on the part of students and the teacher (Correa Cruz et al., 2017).

The principles of problem-based learning are:

- 1) *Permutation of stages (inversion of stages)* – students are given a problem situation and they look for material to solve it;
- 2) *The principle of motivated activity of students* – to calculate the interests and desires of students – the teacher must propose problem situations;
- 3) *Research principle* – when solving a problem, students use mental operations: synthesis, analysis, comparison, abstraction, etc.;
- 4) *The principle of problem visualization* – when solving problems, use tables, diagrams, drawings, plans, etc.;
- 5) *The principle of independence, self-management, and creativity* – the student himself discovers new things for himself, and seeks knowledge that helps solve a problem.

The main element of the problem situation is what must be open for the correct performance of the assigned tasks, the unknown, and the new (Fitsula, 2006).

Three main components contain problem situations:

- 1) The unknown, which must be revealed in a problematic situation;
- 2) The need to perform such an action by a student of higher education, which creates a cognitive need for something new;
- 3) The task should be neither too difficult nor too easy.

The teacher must be guided by the following requirements when identifying and formulating problem situations:

- Focus on the maximum independence of the student's cognitive activity;

- To demonstrate and reveal contradictions in the development of any phenomenon, and not to present the truth in its finished form;
- Take into account the main didactic principles (systematicity, scientificity, accessibility, visibility, etc.).

When there are several options for solving a problem, a problematic situation often arises with insufficient initial data and limited information (Restrepo-Millán & Candela-Rodríguez, 2020).

##### **5. Classification of types of problem situations during the educational process to achieve didactic goals.**

Problem situations are divided into:

According to the method of submitting information to:

- *Textless* (created by demonstration, orally, with the help of a natural phenomenon or device);
- *Textual* (arising during the comprehension of information contained in graphic material or text).

According to the solution time, there are:

- *Long-term* (resolved during several classes);
- *Short-term* (used for prompt activation of students' activities) (Romaniuk & Bohachuk, 2011).

Problem situations can be classified according to the following characteristics:

- By academic discipline or branch of scientific knowledge (mathematics, physics, etc.);
- Based on the search for something new (methods of action, new knowledge, identifying the possibility of using known methods and knowledge in new conditions);
- By the level of difficulty (medium severity, significant, implicitly expressed, or weakly expressed contradictions);
- By the nature and type of the content side of the contradictions (between scientific knowledge, life circumstances, an unexpected fact, and the inability to explain it, etc.).

It is most expedient to classify types of problem-based learning in different spheres of activity according to the features of the creative process. On this basis, the following types of problem-based learning are distinguished:

- *"Scientific" creativity* – the discovery and search by students of a new law, rule, theorem, etc. – theoretical research, which includes setting up and solving theoretical problems of education;
- *Practical creativity* – search for a method of construction, application of known knowledge in a new situation, invention – search for a practical solution based on setting and solving practical problems in the field of education;
- *Artistic creativity is carried out based on creative imagination* – an artistic reflection of reality (drawing, game, literary works, writing a musical piece, etc.).

All types of problem-based learning are characterized by the presence of finding and solving a problem, and the presence of productive, reproductive, and creative activity of the student. During the organization of the pedagogical process, they can be implemented in various forms (Ortiz Ortiz & Hernández Yomayuya, 2023).

The creation of problematic situations pursues the achievement of didactic goals in the educational process:

- 1) To put the student in front of such a cognitive problem, which would quickly activate his mental activity;
- 2) Draw the student's attention to the educational material, task, question, arouse his cognitive interest, etc.;
- 3) Help the student indicate the way out of a difficult situation find the most rational way and determine the limits of application of previously acquired knowledge;

- 4) Help the student identify the main problem in a cognitive question or task and, to solve it, outline a plan for finding ways to implement it;
- 5) Encourage the student to search actively. Solving any educational problem begins with a clear and correct formulation, in the process of which the student to some extent sees the way to its solution and already understands the task set before him, that is, evaluates the results of his activity, having previously drawn up a solution plan and implemented it (Knysh et al., 2023).

#### **6. Peculiarities of problem-based learning compared to traditional learning.**

Let's highlight the features of problem-based learning compared to traditional learning:

- 1) Specific intellectual activity of higher education seekers by solving educational problems while independently mastering new concepts, which ensures the formation of intuitive and logical-theoretical thinking and conscious, solid, and deep assimilation of knowledge;
- 2) Problem-based learning – the most effective way of forming a worldview, independent problem solving, which is the main condition for turning knowledge into beliefs; because in the process of problem-based learning, the features of creative dialectical and critical thinking are formed;
- 3) For the interrelation of theoretical and practical material, the connection with the life of problematic situations is especially effective;
- 4) Systematic application by the teacher of effective combinations of various types of independent work and types, during the execution of which the assimilation of new knowledge and methods of activity is actualized, earlier acquisition of knowledge;
- 5) Each student perceives the problem differently, which leads to finding different ways to solve the problem and various hypotheses;
- 6) The active mental activity of each student, the independent mental activity of a searching nature is inextricably linked with the sensory-emotional sphere of mental activity, and the high emotional activity of students depends on this (Khursenko, 2023).

#### **7. Use of integrative technology, virtual reality, and informational materials in problem-based learning.**

In problem-based learning, it is important to use integrative technology with the help of various technical devices of virtual reality and with the help of software tools. Teachers have the opportunity to transfer informational materials to students through their direct communication with the studied phenomena and objects. In the educational process, situations are created that change the role and place of the student in the organization of a problem situation, when the student must independently apply research experiments and make decisions. The use of integrative technology, virtual reality, and information materials in problem-based learning makes it possible to use such situations in problem-based learning when the student changes the situation by his actions and becomes an active participant in it – solving such situations is possible when "immersing" in a certain environment. This also applies to solving situations that students of higher education solve based on the rules they have created and create them independently. This approach to solving a problem situation expands the opportunities of students who can independently interact with a group of students, changing either the parameters of the process or the conditions of the situation and ways of solving it (Polishchuk et al., 2022). This is because, in our opinion, information and technical means stimulate the dialogue between the student and the teacher and have inexhaustible possibilities of visualizing not only various objects but also the possibility of their implementation in a problem situation. Interactive educational systems make it possible to find out how correctly the student distinguishes the essential features of the concept, make it possible to create a dialogue in the learning process between the student and the teacher at any time, to check whether the student understands the way of communicating in the form of a dialogue. In this case, we see that the possibilities of information and technical means are almost the same as in the conditions of individual training carried out by the teacher.

Information and technical means stimulate the introduction of fundamentally new forms of organization into the educational process, and not only significantly enrich the theory of education. During such an educational process, the student acts as a subject of educational activity, who independently, using heuristic methods, solves various problem situations. First of all, it concerns the process of assimilation of educational information.

By solving a problem situation in the learning process, the student forms the necessary skills and abilities, which ensures an individual approach to educational activities, changing the status of a student who is aware of himself as a person who can provide a solution to any situation and make decisions independently. This reveals new possibilities in the practical implementation of the principle of humanization of education and ensures the formation of a full-fledged personality.

The most important goal of using integrative technology, virtual reality, and information materials as a certain system in problem-based learning is to achieve a high level of formation of the problem situation, which will enable the student to apply intelligence and research skills. In other words, it is necessary to turn the educational process into an interesting experiment, when the student, performing all the functions of managing his activity, solves a problem situation with the help of a teacher or by himself.

Therefore, when using integrative technology, virtual reality, and informational materials in problem-based learning to solve and create a problem situation, the student should be able to:

- 1) Choose the style of educational influences, level, and complexity;
- 2) Determine the nature of educational auxiliary influences;
- 3) Be able to create problem situations independently;
- 4) Choose the sequence of studying the material;
- 5) To make the right decision on one's own initiative and initiate interaction to solve a problem situation.

Computer control of a problem situation depends to a large extent on the selected control mode.

Let's highlight the main management modes:

- 1) Computer-mediated management of educational activities – the student is presented with a problem, which he formulates in the form of a problem situation, situations are used that allow for many decisions regarding the modeling of various social and industrial directions, as well as situations for the search for imperfection. Students receive educational influences in the form of generalized evaluations of actions and heuristic recommendations;
- 2) Direct, on the part of the computer, management of educational activities, when the computer creates a problematic situation for the student; the nature of the help is determined by the computer, and the student may have questions that relate only to solving this problematic situation;
- 3) Dynamic, on the part of the computer and the student, management – the solution of the problem situation appears externally as a joint solution of the task with the computer; the degree of help from a hint to the computer's execution of a fragment of the solution to any problem situation can vary, but the nature and degree of help can be determined by both the computer and the student.

Summarizing the analysis of the psychological mechanism of the distribution of management functions between the student and the computer, we note that in the conditions of problem-based learning using integrative technology, virtual reality, and information materials, the student always performs the functions of managing his educational, and later, professional activities.

In the process of using integrative technology, virtual reality, and information materials in problem-based learning, the student not only acquires certain skills, abilities, and knowledge of educational subjects but also masters his professional activity and begins to perform the functions of managing it, which accelerates the process of forming skills for getting out of problematic situations. situations and general education skills and makes it possible to strengthen the student's independence. It is this approach that determines the specificity of such a psychological mechanism.

In the modes of computer management of students of higher education through problem-based learning, we will single out the main trends:

- An increase in the number of management functions, which are transferred to a higher education applicant during dynamic management;
- Strengthening the positions of indirect control, which involves implicit control from the computer;
- Decline in the popularity of direct management, which depends on the traditions of programmed learning.

Therefore, in the preparation of future specialists, the use of integrative technology, virtual reality, and information materials in problem-based learning opens up opportunities for the student to practically transfer the function of management in the process of solving problem situations. This contributes to increasing the efficiency of the process of applying the skills and abilities formed in one's activity. After all, here you can implement methods of transferring control functions to the student and various forms, clearly dosing the boundaries.

In the process of analyzing and using integrative technology, virtual reality, and information materials to intensify the process of forming students' abilities and skills in problem-based learning, we paid attention to the following aspects:

- 1) *Pedagogical* – to what extent the tool contributes to the development of correct ideas of students and corresponds to the general direction of a specific course;
- 2) *Methodological* – what skills and abilities are formed as a result of using the tool and whether this tool contributes to better learning of the material;
- 3) *Psychological* – how, during the mastering of the relevant educational discipline, this tool affects the solution of a problem situation;
- 4) *Organizational* – is the organizational point of using integrative technology, virtual reality, information materials, and for implementing solutions to problem situations rationally planned in problem-based learning – is enough machine time provided?

Considering modern integrative technologies, virtual reality, and informational materials for training by these provisions, we identified promising directions for the implementation of educational tasks:

- 1) Computer telecommunications equipment;
- 2) Universal information technologies (graphic packages, text editors, database management systems, modeling systems, spreadsheet processors, expert systems, etc.);
- 3) Electronic textbooks, monitoring and training programs;
- 4) Multimedia software products.

The effectiveness of the use of integrative technology, virtual reality, and information materials in problem-based learning is achieved by connecting the student's auditory and visual analyzers to the process of perceiving the proposed educational material.

Computer educational hypermedia systems occupy a special place among them. They make it possible to shorten the period of study, deepen knowledge, and increase the number of students per teacher. Compared to courses on traditional media, hypermedia systems, on which information is presented sequentially, allow students of higher education to directly engage in a topic that interests them and have fairly flexible branching opportunities. In addition, such systems, as a rule, are provided with effective means of monitoring skills and knowledge.

An important condition for the use of integrative technology, virtual reality, and information materials in problem-based learning is the availability of software with an aesthetic, psychologically adequate, intuitive, simple user interface. This is because the human-machine system remains a weak point in the way they interact with the significant increase in the power of computer technology. Modern educational systems require interfaces that are more natural for humans, in particular, such as speech and gesture recognition systems (Plakhotnik et al., 2022). Therefore, the introduction of integrative technology, virtual reality, and informational materials in problem-based learning contribute to the creation of visual images in classes, significantly changes traditional teaching methods, and promotes the development of students' creative thinking and the activation of their educational and cognitive activities. Today, the use of integrative technology, virtual reality, and information materials in problem-based learning is a working tool for the student and teacher in the educational process, and not only popular pedagogical technologies in the professional training of future specialists (Kravchenko et al., 2022).

## 8. Experiment.

During the experimental study, we created control and experimental groups and developed an experimental program that made it possible to create a favorable emotional climate in the experimental group, with the help of this program, the students felt that the group was a single team. During the educational process, the

respondents of the experimental group learned to master the methods of problem-based learning, and the material of the classes contributed to the development of multiple competencies in them, in particular, key, psychosocial, subject-related.

The peculiarity of the developed experimental program is its focus on the adequate use by the higher school teacher of various active learning methods, to take into account the strategy of problem-based learning and the individual style of perception of each student. We offered the students of the experimental group the following forms of work: work in groups, projects, brainstorming, role-playing games, case studies using integrative technologies, virtual reality, informational materials, etc.

The educational process in the experimental group was designed by maximally approaching the capabilities and requests of each student. The main task of the teacher in the experimental group is to create such conditions in the class that the student, performing a problematic task, unexpectedly makes certain generalizations for herself. For this, in the educational process of the higher school, we used various methods of stimulating educational activity and innovative methods to organize effective educational work. The students of the control group (CG) studied according to the usual scenario of the higher school, and the students of the experimental group (EG) studied according to the scenario of the developed experimental program.

In particular, EG students were aware of the content, requirements, and methods of creating problem situations, distinguished criteria features, stages of implementation of problem-based learning, and forms of problem-based learning. During training, the main component of problem-based learning was used and the terms of the organization of the educational process were followed to implement problem-based learning. EG students independently created problem situations that required finding new methods of action or knowledge to achieve tasks and solve certain issues that arose when problem situations arose, which is the main component of problem-based learning.

When implementing problem-based learning in education, EG students, under the guidance of teachers, followed clear innovative conditions for the organization of the educational process of the higher school and took into account the features, principles, elements, structural units, components, and requirements of problem-based learning.

To achieve the didactic goals, the students of EG used the types of problem situations we identified during the educational process.

During the study, the respondents compared and used the features of problem-based learning compared to traditional learning.

During educational activities, EG students used integrative technology and virtual reality, informational materials in problem-based learning.

During the experimental work, we set the task of clarifying the position of the respondents regarding the feasibility of using problem-based learning in the educational process of a higher school.

We organized and conducted a survey in which 17 teachers and 98 students participated.

It was found that not all respondents constantly use problematic methods, guided by the attitudes that were in the answers (the confirmatory stage of the experiment):

- "Special training of the student involves the use of problem situations" – 13.4%;
- "Students do not understand the problematic issue" – 22.4%;
- "Time is not spent rationally at class" – 21.4%;
- "Students do not know how to construct problematic learning situations" – 15.5%, etc.

Among the answers were the following:

- Insufficient educational and methodological support of the higher school – 12.5%;
- Ignoring professional incompetence by problem-based learning technology – 46%.

However, among the respondents there were those who constantly use problematic situations in the educational process – 36.4%.

In the course of the experimental study, the answers of the respondents convincingly proved that the use of problem-based learning technology in classes in higher education contributes to the development of creative thinking, the formation of positive motivation of students, and the formation of their professional competencies.

Most of the teachers we interviewed confirmed the fact that problematic situations are the main basis for creating comfortable conditions for the development of students' critical thinking, cooperation skills, initiative, etc.

Thus, the results of the ascertainment experiment indicate the existence of a contradiction between the real practical situation and the effectiveness of using problem-based learning methods. The majority of respondents are reluctant to use it in pedagogical practice but have a positive attitude toward the concept of a problem-based approach.

After the introduction of the developed experimental program into the educational process of EG, we conducted a formal stage of the experiment to study the impact of problem-based learning on the effectiveness of knowledge acquisition by students. Traditional classes were held in the control group, problem situations were used in the experimental group, which were based on the active participation of the students themselves in the process of acquiring knowledge. EG students used integrative technology and virtual reality, informational materials in problem-based learning.

To establish the impact of problem situations on the completeness of students' knowledge and their depth, respondents were offered situations that helped to reproduce their knowledge in practice.

In the process of research, the respondents of the experimental group showed a significant interest (which increased noticeably) in learning and were actively involved in the proposed types of work.

Better assimilation of educational material and involvement of EG respondents in active search was facilitated by the use of problem situations. In the process of learning according to the developed experimental program, students practiced the ability to work in pairs, express their own opinions, think logically, actively engage in work, and use integrative technology and virtual reality, informational materials in problem-based learning.

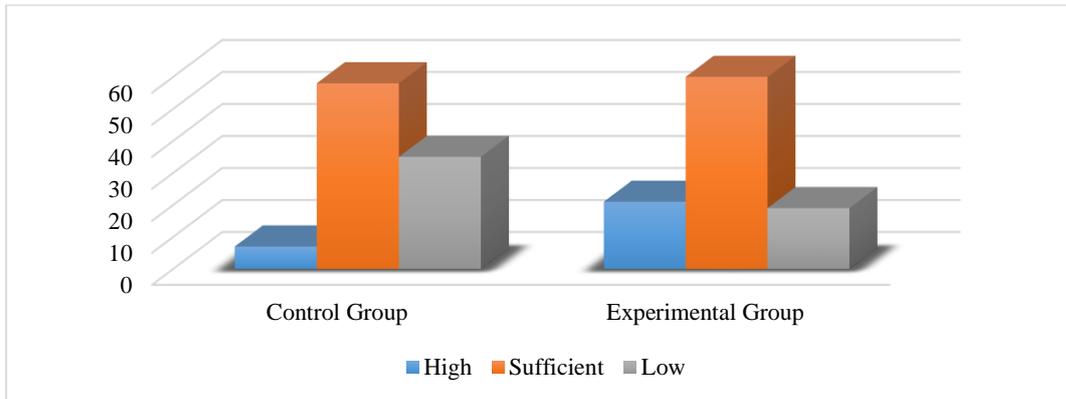
The problem situations offered to the respondents provided for the solution of educational problems and, as a result, new skills, abilities, and knowledge were formed.

Respondents showed special creativity, activity, interest, and independence. In the process of solving problem situations and modeling, the respondents faced the need for practical and theoretical immersion in the problem and felt an intellectual difficulty, which prompted them to independently compare, analyze phenomena, statements, external contradictory facts, formulate hypotheses, compare, conclude and verify them, etc.

The results of the questionnaire data give reason to say that in most cases respondents (89.9%) have a positive attitude towards the implementation of the problem-based approach in classes and consider it necessary to use problem-based learning methods.

As a result of the study, it was proved that the use of problem situations, the use of integrative technology and virtual reality, and informational materials in problem-based learning contributed to an increase in the quality of students' mastery of educational material.

The results of the study indicate positive changes in the experimental group – an increase in the number of respondents with a high level of knowledge acquisition and a decrease in the number of respondents with a low level of knowledge. We present the results as a percentage in Fig. 1.



**Fig. 1.** Levels of mastering the content of the educational material.

Having carried out research and experimental work to identify the expediency and effectiveness of using a problem-based approach in higher education, we state that it is very necessary and important to apply elements of problem-based learning in higher education, because it is the use of problem situations in classes in higher education institutions that contributes to the formation natural competences, general personality development, formation of motivation, interest in learning, increasing the quality of knowledge, development of life skills, mental development of students, increases the level of critical reflection of the student.

By creating problematic situations, the teacher encourages students to learn and understand the material more deeply and better, to think actively, which significantly expands the range of skills, abilities, and knowledge of students, promotes the development of critical thinking, and motivation for learning.

Based on our research, we claim that the organization of problem-based learning in classes in higher education contributes to a more productive and active assimilation of the most important professional knowledge by students, improves relationships and regularities of the educational process.

The theoretical significance of the study is to reveal the theoretical and methodological aspects of problem-based learning of future specialists in the process of professional training at a higher educational institution, including: theoretical prerequisites of problem-based learning; in the selection and disclosure of various aspects related to problem-based learning in the process of professional training of future specialists, on the basis of which educational and methodological support for problem-based learning in a higher educational institution was developed.

The practical significance of the research lies in the development of the structure and content of the educational and methodological complex, which includes a system of problem tasks, during the study of various disciplines in a higher educational institution; methodological instructions for teachers in the educational process.

The developed materials can be used in the process of professional training of future specialists of a higher educational institution, as well as their retraining and professional development.

## Conclusions

The content, requirements and methods of creating problem situations are considered, and criterion features, stages of implementation of problem-based learning and forms of problem-based learning are highlighted.

The implementation of problem-based learning in education requires compliance with the conditions of the organization of the educational process of the higher school. The main component of problem-based learning is revealed and the ways of observing the conditions of the organization of the educational process for the purpose of implementing problem-based learning are shown. A problem situation has been created that requires the search for new methods of action or knowledge in order to

achieve tasks and solve certain issues that arise when a problem situation arises, which is the main component of problem-based learning.

Features, principles, elements, structural units, components, requirements of problem-based learning are justified. A classification of types of problem situations during the educational process with the aim of achieving didactic goals is proposed. Peculiarities of problem-based learning compared to traditional learning are highlighted.

The importance of using integrative technology and virtual reality, informational materials in problem-based learning is proven.

During the experimental study, we created control and experimental groups and developed an experimental program that made it possible to create a favorable emotional climate in the experimental group, and with the help of this program, the students felt that the group was a single team.

During the experimental work, we set the task of clarifying the position of the respondents regarding the feasibility of using problem-based learning in the educational process of a higher school.

After the introduction of the developed experimental program into the educational process of EG, we conducted a formal stage of the experiment in order to study the impact of problem-based learning on the effectiveness of knowledge acquisition by students. Traditional classes were held in the control group, problem situations were used in the experimental group, which were based on the active participation of the students themselves in the process of acquiring knowledge. EG students used integrative technology and virtual reality, informational materials in problem-based learning.

In order to establish the impact of problem situations on the completeness of students' knowledge and their depth, respondents were offered situations that helped to reproduce their knowledge in practice.

In the process of research, the respondents of the experimental group showed a significant interest (which increased noticeably) in learning, and were actively involved in the proposed types of work.

Better assimilation of educational material, involvement of EG respondents in active search was facilitated by the use of problem situations. The results of the questionnaire data give reason to say that in most cases respondents (89.9%) have a positive attitude towards the implementation of the problem-based approach in classes and consider it necessary to use problem-based learning methods. The results of the study indicate positive changes in the experimental group – an increase in the number of respondents with a high level of knowledge acquisition and a decrease in the number of respondents with a low level of knowledge.

Noting the thoroughness of the conducted scientific research, it is worth noting that some issues of problem-based learning require further scientific study, namely: psychological and pedagogical aspects of the application of problem-based learning methods during students' learning of various disciplines. There is no doubt that today problem-based learning is the most promising in the practice of higher educational institutions, which meets modern requirements.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.16>

How to Cite:

Horiachok, I., Ostapiovskiy, O., Vasylenko, I., Snisar, O., & Kukhniuk, O. (2024). Development of social competence in university students: an innovative pedagogical approach. *Amazonia Investiga*, 13(77), 218-232. <https://doi.org/10.34069/AI/2024.77.05.16>

## Development of social competence in university students: an innovative pedagogical approach

Розвиток соціальної компетентності студентів ЗВО: інноваційний педагогічний підхід

Received: April 1, 2024

Accepted: May 22, 2024

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### Abstract

The article emphasizes the importance and explores the essence and content of the concept of social competence. It identifies the main components of social competence and the conditions for organizing the educational process to foster it. By analyzing the professional and social functions of specialists, the article identifies the components that should be based on an acmeological direction, social functions, and social norms of the individual, all of which are part of the main components of social competence. The optimization of the entire system of professional-pedagogical training involves finding effective approaches (in the context of level education) to develop social competence in future specialists. The article also demonstrates the importance of applying contextual learning theory to develop social competence in specialists. It outlines the components included in the structure of social competence and the main provisions of effective

### Анотація

У статті наголошується на важливості та досліджується сутність і зміст поняття соціальної компетентності. Визначено основні складові соціальної компетентності та умови організації освітнього процесу для її формування. Проаналізувавши професійно-соціальні функції спеціаліста, у статті визначено компоненти, які мають базуватися на акмеологічному спрямуванні, соціальні функції та соціальні норми особистості, які входять до основних компонентів соціальної компетентності. Оптимізація всієї системи професійно-педагогічної підготовки передбачає пошук ефективних підходів (у контексті рівневої освіти) до формування соціальної компетентності майбутніх спеціалістів. У статті також показано важливість застосування теорії контекстного навчання для розвитку соціальної компетентності спеціалістів. Окреслено

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approaches and principles for the formation of social competence in students. Finally, the article shows ways to form and develop social competence through the use of information and communication technologies.

**Keywords:** social competence, students, higher school, effective conditions for organizing the educational process, formation and development of students' social competence.

## Introduction

In connection with the expansion of a person's manifestation of social activity, the circle of his personal opportunities, the unfolding of global integration processes, and the democratic progress of society, the problem of developing social competence is extremely relevant for student youth. Its solution is connected with the development of a person's ability to solve complex problems and with preparation for professional self-realization of the individual, which puts life before the modern person.

Nowadays, the need for the development of social competence in students is caused by the aggravation of the life of a young person in all areas of social problems: a decrease in the level of social integration of a person in society, an increase in unemployment, a decrease in professional responsibility, low legal protection and social literacy of citizens, etc. The importance of the development of issues of social competence of young people, and its thorough study, is increasing nowadays in connection with the growth of a significant number of people with signs of life limitation in the social structure of the society's population and the insufficient level of inclusion of people with limited psychophysical capabilities in the social and educational environment, which is one from numerous groups of the planet's population (Andreyeva, 2023).

The modernization of higher education, which is currently taking place in society, involves the training of specialists who are able not only to build strategies for their own professional and personal growth but also to establish relationships in society, to be capable of future professional activities of constant implementation and use of innovations, productive partnership (Zhukova, 2019). Modern society needs specialists who will be socially in demand and mobile in various spheres of life and are interested in the training of specialists who adequately respond to today's challenges.

The development of social competence of students of higher education institutions is currently a relevant issue of theory and teaching methods in the educational process. Based on this, we considered the following questions in the article:

- Importance, essence, and content of the concept of social competence.
- The main components of social competence and conditions for the organization of the educational process.
- Application of the theory of contextual learning in the formation of social competence of specialists.
- Components provided by the structure of social competence and basic provisions of effective approaches and principles of forming students' social competence.
- Formation and development of social competence through the use of information and communication technologies.
- Organization of experimental work.

## Literature Review

Recently, the study of the development of the social competence of an individual has been updated in society – an important socio-pedagogical process in a person's life. This is evidenced by a thorough analysis of various electronic and printed sources of information, which shows that the study of development of

компоненти, що входять до структури соціальної компетентності та основні положення ефективних підходів і принципів формування соціальної компетентності в учнів. Насамкінець у статті показано шляхи формування та розвитку соціальної компетентності шляхом використання інформаційно-комунікаційних технологій.

**Ключові слова:** соціальна компетентність, студенти, вища школа, дієві умови організації освітнього процесу, формування й розвиток соціальної компетентності студентів.

social competence of an individual is studied at different age stages of human development, in different centers, since it is relevant for a person and society throughout his life.

Thus, D. Dzvinchuk, & O. Kachmar (2022) consider the importance of the formation of sociocultural competence for a person. Scientists prove that the social competence of students at the current stage of human development is a fundamental competence for future managers. They show the relevance of this issue in the conditions of noospheric civilization, prove that the level of formation of social competence and its formation on the professional development of an individual has a great influence on the value attitudes of a person, the formed level of social competence in the young generation will have an impact on the further development of all humanity. Scientists revealed the content of the artistic component of professional competence and presented their own interpretation of social competence, which "represents the sum of certain personal characteristics, social abilities, theoretical knowledge and practical skills, which includes existential skills (soft skills), social intelligence and historical memory "yeah".

The conditions for the formation of students' social competence in institutions of higher education were highlighted by Ya. Lukatska (2021), which during the educational process should be created by the teacher, which helps the development of social competence and its formation in students, improving and facilitating this educational process. It has been proven that one of the key tasks of a higher school is the development of social competence, because mastering social competence without acquiring social skills is impossible, in general, the very concept of social competence is inextricably linked with the professional competence of a future specialist. Each of these constructs requires students to develop different levels of competence. This problem is investigated by O. Zhukova (2019), who, during a theoretical-experimental study of the problem of forming social competence using game technologies in higher education institutions among students of humanitarian specialties, substantiated the conceptual foundations of the formation of social competence of specialists. The author theoretically substantiated the created didactic system of social competence formation and experimentally verified its effectiveness using game technologies for students of humanitarian specialties of universities; proposed indicators, criteria, levels, and components of the formation of social competence, developed appropriate diagnostic tools for students of humanitarian specialties of universities.

M. Andreyeva (2023) highlighted the ways of developing the social competence of students of professional preliminary higher education, in particular, the study covers the category of people with special educational needs. Using the example of the generalized pedagogical experience of the basics of personality socialization, the author specified the meaning of the definitions "social competence" and "competence" and considered the main ways of developing social competence in students with special educational needs, developing a system for the development of social competence of students for work with the category of people with special educational needs. The developed system ensures the achievement of socially significant goals in various social situations with a clear awareness by the student of his own role in this process, which is implemented through several components, the implementation of which ensures the direction of external and internal personal resources.

An analysis of the content and structure of social competence of students of a pedagogical university was carried out, the definition of the structure of social competence of pupils and students was systematized and considered, and various approaches to clarifying the problem were shown – S. Sharov (2020). The social competence of pupils and students is outlined as a characteristic that is multi-component for the individual, which allows for avoiding conflicts and interacting comfortably with the social environment. It has been proven that the social competence of students in connection with uniqueness and specificity has certain features.

A thorough analysis of various electronic and printed sources of information shows that the study of the development of the social competence of an individual is studied in many studies because it is relevant for the individual and society throughout a person's life.

Scientists have proven the importance and necessity of forming sociocultural competence for a person, it is shown that at the current stage of human development, the social competence of students is a fundamental competence for future specialists.

But due attention has not been paid to the study from a socio-pedagogical position in the student age of the features of the development of social competence and the development of a system that would promote the self-development of the individual during integration into the professional sphere and adult life of a person. Theoretical analysis of scientific sources and practical experience of institutions of higher education that train specialists in the social sphere proves that, despite the presence of a significant amount of materials (theoretical, methodological, practical, etc.) from the investigated problem, there is a lack of scientific research on the specifics of the formation of social competence of students at the level of a systemic approach, and the need to develop and implement progressive changes in the higher education system of Ukraine in the context of the formation of social competence of students.

The relevance of this problem is greatly enhanced by the revealed contradictions between:

- Modern society's requirements for specialists in the social sphere, requests from employers who need socially competent students who are able to effectively interact with society, establish contacts with objects and subjects of professional interaction, productively implement social roles, functions within the competence of students, with social significance competence as a leading personality quality and the insufficient level of its formation in future specialists in general and its individual components in particular;
- The need for the formation of students' social competence in the conditions of the educational environment of the institution of higher education, internal instructions for students on socio-professional self-development, self-education and the insufficient development of scientific and methodological support for this process;
- The need for complex diagnostics and monitoring of the level of social competence formation of students and the insufficient development of relevant criteria, indicators and mechanisms for the implementation of the above.

The outlined contradictions actualized the need to create a system for the formation of students' social competence, which is focused on the integration of university education, informal and informal, and in which the key place belongs to the internally motivated student, who is oriented to socio-professional self-development and capable build his individual trajectory, is socially active and effectively interacts with various social groups, institutions, clients, is able to learn throughout his life.

The topicality of the voiced problems, their insufficient theoretical and methodological development in the theory and practice of social work, the need to resolve and eliminate contradictions determined the choice of the topic of the article.

**The aim of the study.** To find out effective ways of development and formation of social competence, conduct a comprehensive diagnosis of students of higher education.

## Methodology

The research used a set of *methods*:

- *Theoretical* – analysis of periodicals, pedagogical, medical, psychological, socio-pedagogical, and sociological literature to determine the state of development of students' social competence and ways of developing the problem; systematization of facts, theoretical generalization of material for characterizing basic definitions, generalization of the experience of the educational process of students in institutions of higher education, formation of conclusions;
- *Empirical* – student testing, pedagogical observation, to assess the level of development of social competence of an adult.

In the process of conducting a pedagogical experiment, a comprehensive diagnosis of students was conducted to find out effective ways of developing and formation of social competence.

256 students of humanitarian specialties participated in the experiment (156 students made up the experimental group (EG), and 100 students made up the control group (CG).

In the process of the experiment, the stages of the formation and development of social competence among students were developed, because the verification of the formation in the educational process of universities and the development of social competence among students is not possible without substantiation of the stages of implementation of the formation and development of social competence, which is necessary for the verification of the developed pedagogical system within the framework of which it was carried out education and training of students in the created purposeful process of stimulating and organizing pedagogical educational activities for the development of activity, value-motivational, cognitive characteristics of a person, which will allow the student to self-realize in – professional and educational – environments in various social situations.

Defined and proposed effective conditions, the introduction of which in the process of formation and development of students' social competence was accompanied by the implementation of the following functions: communication, diagnostic-prognostic, creative, and the use of active learning methods, performance of various degrees of complexity of creative tasks; using self-training and training forms.

At the ascertaining stage of the experiment, to find out the state of formation and development of social competence among students, a test survey was used that diagnosed the desire to be in society and the formation of motivation for the formation of social competence of students.

At the ascertaining stage of the pedagogical experiment, we see mainly a low and medium level of formation of students' social competence. It is this stage of the experiment that confirms the expediency and relevance of our research.

At the formative stage of the conducted experiment, experimental verification of the hypothesis was foreseen – the introduction of the developed didactic system into the educational process of the higher school and its implementation at such stages as the motivational stage, the creative stage, the cognitive stage, the corrective and reflective stage of the formation and development of social competence among students will be effective by implementing the effective conditions developed by us. The process of implementation of the proposed stages of formation and development of social competence among students was accompanied by the use of appropriate methods, necessary forms, and methodological techniques.

The dynamics of changes in the control group, compared to the experimental group, were significantly lower. Using Pearson's statistical test (2) the results of the pedagogical experiment were verified and statistically significant differences were recorded in the results of the control and experimental groups of respondents, which confirms the proposed hypothesis.

Comparing the results of the study (initial and final) according to the levels of formation and development of the social competence of students in CG and EG makes it possible to prove their positive dynamics in the experimental group.

## **Results and Discussion**

### **Importance, essence, and content of the concept of social competence.**

An important task of institutions of higher education, in particular social and pedagogical activities of institutions, is to promote the development of social competence of students at the internal and external levels of university functioning.

Recently, more and more researchers have given social competence the main place in higher education.

A specialist, in modern conditions, must be able to interact constructively with various social institutions, with groups of people, and with other people, to effectively resolve conflicts and avoid their initiation, and not only to develop the professional qualities of a specialist, that is, to have developed social competence using a competence approach (Sharov, 2020).

Social factors play an important role in the educational process of a higher school because higher education institutions train specialists who change society by interacting with it. Social competence is considered an integrated ability of a person, which includes such human competencies, which are key for him: civic, spiritual, communicative, professional, household, language, etc., that is, integration of different types of

competencies takes place. So, we see the importance of the concept of social competence for the formation of professional competence, because it is impossible to fully master professional competence without mastering social competence (Lukatska, 2020).

The analysis of scientific works made it possible to find out the essence, content, and structure of social competence:

- 1) The content, essence, and structure of social competence are defined either as a person's ability to social interaction from the point of view of social competence, or as an integrative quality of an individual from the standpoint of understanding such competence;
- 2) Social competence is evaluated as an indicator of an individual's achievements in society, in a certain type of functioning; the ability to solve specific social tasks; as a result of certain pedagogical socially determined activity – social competence is characterized;
- 3) The content component of social competence is determined by the social context, on the one hand – it depends on the external social situation, its specifics, and where the realization and formation of social competence takes place, on the other hand, the content component of social competence – is defined by the internal social situation: characterological features (influence the social human behavior), a person's age (character of individual characteristics of a person), belonging to a specific social group (Andreyeva, 2023).

A person's social competence, which is closely related to professional competence, is based on social intelligence. Social competence is manifested both in knowledge and in the ability to use this knowledge in the process of creative activity and social interaction because, without successful interaction of the individual with society, it is impossible to acquire the skills, knowledge, and skills inherent in a qualified specialist (Herrera Granda et al., 2023).

The success of the activity in society as a whole and of an individual speaks about the level of social competence of the individual. It is the obtained high level of social competence that makes it possible to exert personal influence on society and the processes taking place in society, to be successful in professional activities, and to feel stability in social life. It should also be taken into account that "social competence is an integrated ability that includes other key competencies: spiritual, civic, communicative, linguistic, every day" (Lukatska, 2020).

The basis of a person's professional competence is social competence, which includes social intelligence, soft skills, soft-skills – existential skills, and historical memory.

A socially competent person must be able to solve various conflict situations, understand the "pitfalls" that a certain situation creates, the essence of the situation, and solve it competently. Emotional and social intelligence is an important component of social competence. Thus, an important basic characteristic of an individual is social competence, which reflects the ability to construct different life scenarios of a person, the level of motivation, allows one to form a healthy social climate and make corrections in the social process (Dzvinchuk & Kachmar, 2022).

The teacher needs to take into account when successfully forming the social competence of a higher school student:

- Integrated educational activity;
- Interdisciplinary connections;
- Awareness of the role of a moderator as a teacher;
- Ensuring the process of humanization of education;
- Formation of information culture of the student;
- Introduction of high-quality educational work.

The teacher must undertake: the involvement of students in research activities, the organization of independent work, the introduction and development of new methods of conducting classes, and the educational process, which will contribute to the creation of a socially successful personality (Pegalajar Palomino, 2017).

### **The main components of social competence and conditions for the organization of the educational process.**

Analyzing the professional and social functions of a specialist, we will distinguish those components that should be based on the acmeological direction, social functions, and social norms of the individual and are part of the main components of social competence:

- Ethical component (tolerance, pedagogical tact);
- Professional and methodical component (ability to empathize, erudition);
- Social and personal components (sincerity, self-identity);
- Socio-communicative component (communicative abilities) (Vázquez-Cano et al., 2017).

Optimization of the entire system of professional-pedagogical training involves the search for effective approaches (in conditions of level education) to the formation of social competence of future specialists, which speaks of ensuring certain effective conditions for the organization of the educational process:

- Humanitarianization of education, forms the culture of the individual, contributes to the spirituality of a person, the formation of social competence of future specialists, and forms a holistic picture of the world and planetary thinking;
- Humanization of education, contributes to the establishment of the individual as the highest social value, aimed at satisfying various educational needs of the individual, the fullest disclosure of the student's abilities, education of a sense of freedom, self-esteem, harmony of relations with society; creation of an innovative new model of the educational field, which gives priority to education that is focused on the personality of the student (personally oriented approach) to an educational field focused on subject knowledge;
- The national orientation of education consists of an organic combination of the history of education, its national traditions, the inseparability of education from the national basis, the enrichment and preservation of national values of all peoples and nations;
- Transition to active technologies and teaching methods from mainly informative forms and even to scientific research, to the use of problem elements, to innovative independent work of higher school students in the formation of social competence of future specialists;
- Transfer of emphasis on educational and cognitive activities of the individual from educational activities;
- The creation of conditions for the self-determination of the individual, self-realization, and self-affirmation, which is the result of human self-organization and the formation of social competence of future specialists;
- Ensuring the creative orientation of the educational process in the formation of social competence of future specialists;
- Partnership, personal and equal positions of student and teacher. This approach is necessary for the formation of the social competence of future specialists and is related to the change of functions and roles of participants in the educational process of the higher school, activation, stimulation of learning, activity, formation of motives for self-development of the student, creation of conditions for self-development;
- The transition to activating means, developing means of organizing the educational process of the higher school, which provide for the stimulation of personality, the organization of independent, creative activities of students;
- The formation of a continuous education system, which allows constant deepen the formation of the social competence of future specialists, promotes professional training throughout life (transforming education into a process of self-development of a person that continues throughout life), provides the opportunity for continuity in the educational and educational process, and the achievement of the integrity of the educational process (Holguin-Alvarez et al., 2021).

### **Application of the theory of contextual learning in the formation of social competence of specialists.**

To ensure optimal conditions for the organization of the educational process in the formation of the social competence of specialists, it is advisable to apply the theory of contextual learning, to focus on the future practical activity of the specialist, which is the main requirement of the competence approach (Puhach et al., 2021).

The essence of the contextual approach, as a way of achieving professional competence, is to create conditions for the formation of social competence of specialists and an organic combination of professional and educational activities of a person. The implementation of the contextual approach is carried out by reproducing the methods of student educational activities and forms of real relationships, industrial situations, the environment, and society. In contextual education, the main unit of creating high-quality educational content in the formation of social competence is a problematic situation in social ambiguity and all its subject contradictions. It is the system of such problematic situations that creates significant opportunities for the integration of knowledge of various disciplines and allows the content of education to be dynamically developed by designing simulated professional activities, which is important and necessary for solving these situations.

The selection and creative use of certain teaching methods and interactive forms for the formation of the student's social competence imply a higher degree of complexity in the educational and professional program. The specific application of such innovative methods and forms is determined by the features of the content and structure of the curriculum, the contingent of students, and the specialized educational program. The development and formation of social competence among graduates is facilitated by a combination of extracurricular work and active, interactive forms of classroom work and worldview content of university education:

- Professional communication between students and teachers;
- The corporate culture of the university;
- Participation of students in the system of academic communications;
- Advising students in offline and online modes, etc.

With this approach, interactive and active methods and forms of learning are the main components of the formation of human social competence.

To increase the effectiveness of the educational process in a higher educational institution, it is necessary to create conditions for the formation of the social competence of specialists, for the maximum approximation of the system of control and assessment of the competencies of future specialists to the conditions (case banks, profile virtual knowledge bases, etc.) of their future professional activity (Subina, 2016).

### **Components provided by the structure of social competence and basic provisions of effective approaches and principles of forming students' social competence.**

Various components are attributed to the structure of social competence:

- Personal, value-motivational, active, and reflective (Zarubinska, 2009);
- Emotional-motivational, cognitive, communicative-behavioral, and personal-value (Datsenko, 2012);
- Implementation-management, participative-active, motivational-personal, and reflective (Kachalova, 2014);
- Status-role, communicative, value-dispositional (Shakhrai, 2016).

Social competence is responsible in society for constructive interaction and effective life activities with different people, institutions, and social groups and is one of the key competencies of a modern personality (Sharov, 2020).

We see that the structure of social competence includes components related to motivation, social knowledge, appropriate activity, and assessment of social situations.

Social competence, which is one of the key competencies of a future specialist in the process of professional activity, provides an opportunity to build constructive relations, communication, etc. with the surrounding society. An integral characteristic of a person is his social competence, which includes interactive and communicative, personal, behavioral, and psychological abilities, as a system of moral values, with the help of which a person interacts with society and performs social roles (Sharov, 2020).

In the formation of the social competence of students of higher education institutions, the main provisions of effective approaches were applied:

- Systemic approach, which characterizes the educational process as a complex system of elements that are interconnected, as a system that, in the process of innovative ideas, understanding of the historical and cultural heritage of mankind, and instrumental technologies, is aimed at the development of the student's personality;
- A competency-based approach that orients the universe to the formation of a young interactive generation that can navigate the information space and is mobile in the labor market; will be able to make personal value and worldview choices, learn throughout life, using rationally acquired skills, abilities, and knowledge in various spheres of activity to solve difficult situations;
- A personal approach aimed at the versatile (social, personal, professional) development of a person through the formation of students' ways of behavior and practical actions, the maximum application of the possibilities of subject knowledge, which is necessary for solving problems that arise in various spheres of human activity;
- A person-oriented approach, which focuses the center of attention on the person – open, unique, integral to the perception of extraordinary ideas and new social experience, capable of conscious, rational choice in various situations (Polanco-Levicán et al., 2023).

Therefore, the generalization of the characteristics of systemic, competence-based, personal, and person-oriented approaches, the implementation of their main provisions in the educational process of the university in the plane of the formation of social competence of a person, will contribute to the increased of their professional and personal potential and the effectiveness of the life process through the observance of the following principles: the expediency of support and pedagogical activity, integrativeness, dialectical unity of the development of the individual and society, constructive synthesis in the process of developing social competence among students of higher education (Zhukova, 2019).

#### **Formation and development of social competence through the use of information and communication technologies.**

Often, a person is unable to process large amounts of information, because the existence of an individual in the information society of a modern person significantly affects his ability to perceive information and process it, therefore, human activity is counterproductive (Kuchai et al., 2022). Nowadays, we observe widespread visualization and processing of information to increase the speed of learning through the use of information and communication technologies (ICT), in particular in institutions of higher education in the production of digital content, communication, educational activities, business, scientific activities, etc. Given this, modern specialists should be familiar with professional activities and training in the ways of using ICT. At the same time, one of the main components of a modern person's personality, social competence, can be effectively developed through the use of cloud and mobile technologies, visualization tools, electronic tools, etc. – information and communication technologies (Shetelya et al., 2023).

We agree with S. Sharov's (2019) opinion that "in the case of massive open online courses, you can additionally improve your own qualifications depending on the chosen course. In addition, different types of online platforms have different means of providing feedback between participants in the learning process. Therefore, to form and develop social competence, they used the Internet, information, and communication technologies, which have wide and powerful opportunities for students of higher education to develop and form social competence.

#### **Organization of experimental work.**

In the process of conducting a pedagogical experiment, a comprehensive diagnosis of students was conducted to find out effective ways of developing and formation of social competence.

256 students of humanitarian specialties participated in the experiment (156 students made up the experimental group (EG), and 100 students made up the control group (CG).

In the process of the experiment, the stages of the formation and development of social competence among students were developed, because the verification of the formation in the educational process of universities and the development of social competence among students is not possible without substantiation of the

stages of implementation of the formation and development of social competence, which is necessary for the verification of the developed pedagogical system within the framework of which it was carried out education and training of students in the created purposeful process of stimulating and organizing pedagogical educational activities for the development of activity, value-motivational, cognitive characteristics of a person, which will allow the student to self-realize in the environments – professional and educational – in various social situations.

The motivational stage involves providing students with help and support from the teacher to create attitudes for sustainable motivation regarding the formation and development of social competence in students – through pedagogical support.

The creative stage of the formation and development of social competence is characterized by the process of mastering certain skills by students through certain effective conditions, in particular:

- The use of modern pedagogical technologies in the educational process of a higher school;
- Implementation of the principles of partnership pedagogy in the educational process of the higher school, as a basis for the social activity of students and the need to develop a positive position of higher education seekers;
- Provision of active learning methods for the formation and development of human social competence;
- Coordination, coherence, and correction of psychological and pedagogical attitudes of the subjects of the educational process of the higher school during independent activities in overcoming the barriers of sociocultural life;
- During extracurricular and classroom work of the student – immersion in various types of activities during social practices;
- In the process of formation and development of students' social competence – implementation of pedagogical support of the education process.

The introduction of the specified effective conditions into the process of formation and development of students' social competence was accompanied by the implementation of the following functions: communication, diagnostic-prognostic, creative, and the use of active learning methods, performance of various degrees of complexity of creative tasks; using self-training and training forms.

The cognitive stage of the formation and development of social competence among students ensured the familiarization of education seekers with their moral values: with the foundations of social policy and society's legislation, the nature of social reality, and norms of behavior in society. At this stage, the task related to the identification of possible ways to prevent identified barriers of sociocultural life and the identification of methods and specific techniques for overcoming the barriers of sociocultural life was solved.

The corrective and reflective stage of formation and development of social competence among students was aimed at the development of personal qualities of students:

- Rethinking the consequences, results, and reflection of one's own activity;
- Independence in making important decisions;
- Overcoming conflict situations and preventing barriers to socio-cultural life;
- Self-assessments of actions, feelings, own qualities during socially useful affairs and performing activities in society.
- Feedback on the expediency and effectiveness of the student's own actions.

At the ascertaining stage of the experiment, to find out the state of formation and development of social competence among students, a test survey was used that diagnosed the desire to be in society and the formation of motivation for the formation of social competence of students.

The obtained results of the ascertaining stage of the pedagogical experiment indicate that the social competence of students of humanitarian specialties is formed mainly on low level and medium level. At a high level, it is formed only in a small part of students.

At the ascertaining stage of the pedagogical experiment, we see mainly a low and medium level of formation of students' social competence. It is this stage of the experiment that confirms the expediency and relevance of our research.

At the formative stage of the conducted experiment, an experimental testing of the hypothesis was foreseen – the introduction of the developed didactic system into the educational process of the higher school and its implementation at such stages as motivational stage, creative stage, cognitive stage, corrective and reflective stage of formation and development of social competence among students will be effective by implementing the effective conditions developed by us. The process of implementation of the proposed stages of formation and development of social competence among students was accompanied by the use of appropriate methods, necessary forms, and methodological techniques.

We used the questionnaire "Didactic Game in the educational process of the higher school". The study showed that only 3% of the respondents were able to perfectly describe the game situations that form and contribute to the development of social competence among students in institutions of higher education.

In the experimental group, in the process of training students of humanitarian specialties, the following was introduced:

- Lectures with problem elements, interactive methods (brainstorming, debates, discussions, round tables), problem-based learning methods (problematic situations), project development, reflection methods, research, and search methods were used in practical classes;
  - Various types of practices were aimed at the development of social competence among students;
  - Various types of extracurricular and classroom work, university-wide events;
  - Master classes and training;
  - Various types of work provided by tasks aimed at developing social competence among students:
1. Study and application of game interaction, and its various aspects; acting out and solving pedagogical situations proposed by the teacher; analysis of film fragments;
  2. Writing essays, letters of reflection, and essays; reviewing, and writing annotations to articles; compilation of various recommendations, advice, and reminders; preparation of pedagogical collage, crosswords, etc.; creation of a card index of techniques and methods of forming social competence; establishment of interdisciplinary connections;
  3. Use of gaming technologies in the process of forming social competence; preparation of discrete presentations from professional disciplines, development of projects by the algorithm provided by the teacher; creation of video clips and videos.

Students of the control group studied according to the usual method.

At the formative stage of the pedagogical experiment, the analyzed work results were summarized. To characterize the dynamics of the formation of social competence, an analysis of the comparative results obtained at the ascertaining and formative stages of the experiment was made. We see that the students of the experimental group experienced more significant changes compared to the students of the control group, which confirms the hypothesis put forward by us.

The application of the developed pedagogical system and effective conditions in the process of formation and development of students' social competence confirmed that as a result of the pedagogical experiment, there were quantitative changes in the indicators, which showed significant qualitative transformations in the behavior and consciousness of the respondents, which indicates the positive dynamics of the formation of social competence.

The dynamics of changes in the control group, compared to the experimental group, were significantly lower. Using Pearson's statistical criterion ( $\chi^2$ ), the results of the pedagogical experiment were checked and statistically significant differences were recorded in the results of the control and experimental groups of respondents, which confirms the proposed hypothesis.

Comparing the results of the study (initial and final) according to the levels of formation and development of the social competence of students in CG and EG makes it possible to prove their positive dynamics in the experimental group:

*High level:*

- 29.7% – at the beginning of the experiment;
- 65.5% – at the end of the experiment;

*Sufficient level:*

- 37.1% – at the beginning of the experiment;
- 25.4% – at the end of the experiment;

*Average:*

- 22.2% – at the beginning of the experiment;
- 7.9% – at the end of the experiment;

*Low level:*

- 11% – at the beginning of the experiment;
- 1.2% – at the end of the experiment.

The following results were obtained in the control group.

*High level:*

- 27.7% – at the beginning of the experiment;
- 31.1% – at the end of the experiment;

*Sufficient level:*

- 38% – at the beginning of the experiment;
- 41.3% – at the end of the experiment;

*Average:*

- 22.1% – at the beginning of the experiment;
- 18.9% – at the end of the experiment;

*Low level:*

- 12.2% at the beginning of the experiment;
- 8.7% – at the end of the experiment.

The results of the pedagogical experiment, in particular, the formative stage, showed a significant decrease in the low level and an increase in the high level of the formation and development of social competence of students of the higher school. The general research hypothesis was confirmed during the pedagogical experiment, the goal was achieved.

Therefore, the application of the developed pedagogical system and effective conditions in the process of formation and development of students' social competence is effective and can be proposed for distribution.

**Recommendations.**

For more effective formation and development of students' social competence, the following pedagogical conditions must be observed:

- The use of modern pedagogical technologies in the educational process of a higher school;
- Implementation of the principles of partnership pedagogy in the educational process of the higher school, as a basis for the social activity of students and the need to develop a positive position of higher education seekers;

- Provision of active learning methods for the formation and development of human social competence;
- Coordination, coherence, and correction of psychological and pedagogical attitudes of the subjects of the educational process of the higher school during independent activities in overcoming the barriers of sociocultural life;
- During extracurricular and classroom work of the student – immersion in various types of activities during social practices;
- In the process of formation and development of students' social competence – implementation of pedagogical support of the education process.

The process of formation and development of social competence of future specialists will be effective if: – the educational process developed pedagogical system and effective conditions are applied in the process of formation and development of social competence.

Regarding the discussion on the implications of the findings of the results of the social competence of university students, the ability to apply effective methods of interaction with colleagues and students according to the situation, the ability to predict problematic situations with the aim of their timely avoidance and positive resolution is provided; use of various innovative technologies to achieve the set goal; tolerant attitude towards interlocutors, avoidance of criticism; a critical attitude towards oneself and one's behavior in the process of performing professional activities.

The obtained research results can be used to organize the educational process in institutions of higher education that train future specialists in the social sphere, as well as in the process of creating educational and methodological manuals and in the self-educational activities of students.

The conducted research does not exhaust all aspects of the raised problem and proves the need for its further development in such promising areas as the search for innovative approaches to the formation of social competence of students using the global Internet, effective mechanisms of social interaction with interlocutors/clients in the process of virtual communication; development of mass open online courses on the formation of social competence of future social workers and their placement on online distance learning platforms.

## Conclusions

We have shown the importance and revealed the essence and content of the concept of social competence. The main components of social competence and the conditions for organizing the educational process are listed. Analyzing the professional and social functions of a specialist, those components that should be based on acmeological direction, social functions, and social norms of the individual and are part of the main components of social competence are singled out.

The optimization of the entire system of professional-pedagogical training involves the search for effective approaches (in the conditions of level education) to the formation of social competence of future specialists, therefore it is shown to ensure the development of effective conditions for the organization of the educational process.

The importance of applying the theory of contextual learning in the formation of the social competence of specialists has been proven.

The components provided by the structure of social competence and the main provisions of effective approaches and principles of the formation of social competence of students are singled out.

Ways of formation and development of social competence are shown through the use of information and communication technologies.

In the process of conducting a pedagogical experiment, a comprehensive diagnosis of students was conducted to find out effective ways of developing and formation of social competence.

256 students of humanitarian specialties participated in the experiment (156 students made up the experimental group (EG), and 100 students made up the control group (CG). In the process of the experiment, the stages of formation and development of social competence among students were developed, because the verification of formation in the educational process of universities and

development of social competence among students is not possible without substantiating the stages of implementation of the formation and development of social competence, which is necessary for checking the developed pedagogical system within which the education and training of students were carried out in the created purposeful process of stimulating and organizing pedagogical educational activities for the development of the activity, value-motivational, cognitive characteristics of a person, which will allow a student to self-realize in various social situations – professional and educational.

Defined and proposed effective conditions, the introduction of which in the process of formation and development of students' social competence was accompanied by the implementation of the following functions: communication, diagnostic-prognostic, creative, and the use of active learning methods, performance of various degrees of complexity of creative tasks; using self-training and training forms. At the ascertaining stage of the experiment, to find out the state of formation and development of social competence among students, a test survey was used that diagnosed the desire to be in society and the formation of motivation for the formation of social competence of students. At the ascertaining stage of the pedagogical experiment, we see mainly a low and medium level of formation of students' social competence. It is this stage of the experiment that confirms the expediency and relevance of our research.

At the formative stage of the conducted experiment, an experimental test of the hypothesis was foreseen – the introduction of the developed didactic system into the educational process of the higher school and its implementation at such stages as motivational stage, creative stage, cognitive stage, corrective and reflective stage of formation and development of social competence among students will be effective by implementing the effective conditions developed by us. The process of implementation of the proposed stages of formation and development of social competence among students was accompanied by the use of appropriate methods, necessary forms, and methodological techniques.

The dynamics of changes in the control group, compared to the experimental group, were significantly lower. Using Pearson's statistical test (2) the results of the pedagogical experiment were verified and statistically significant differences were recorded in the results of the control and experimental groups of respondents, which confirms the proposed hypothesis. Comparing the results of the study (initial and final) according to the levels of formation and development of the social competence of students in CG and EG makes it possible to prove their positive dynamics in the experimental group.

Recommendations for more effective formation and development of students' social competence have been developed.

The conducted research does not cover all aspects of the mentioned problem. It requires further study of the formation of social competence, in particular, the development of educational and methodological support for this process and; the implementation of foreign experience in the formation and development of social competence of students of higher education.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.17>

How to Cite:

Baimakhan, A.S., Karabulatova, I.S., Belgibayeva, G.K., Berdi, D.K., & Iskakova, P.K. (2024). Digital technologies in the formation of communicative competence in the situation of multicultural bilingualism and modern real/virtual urbanism. *Amazonia Investiga*, 13(77), 233-245. <https://doi.org/10.34069/AI/2024.77.05.17>

## Digital technologies in the formation of communicative competence in the situation of multicultural bilingualism and modern real/virtual urbanism

### Цифровые технологии в формировании коммуникативной компетентности в ситуации разноструктурного билингвизма и современной реальной/ виртуальной урбанистики

Received: March 4, 2024

Accepted: April 25, 2024

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#### Abstract

The present research explores the formation of communicative competence in foreign languages in the context of modern electronic and digital society. A methodology is proposed based on the use of digital educational resources that simulate virtual urban environments. The main objective is to define and substantiate this methodology, based on the contributions of computer psycholinguistics, neurolinguistics and digital neuro-pedagogy.

The central hypothesis of the study is that the understanding of the foreign language learning process, with emphasis on the particularities of neurocognitive connections, is favored by the use

#### Абстракт

В настоящем исследовании рассматривается формирование коммуникативной компетенции на иностранных языках в контексте современного электронного и цифрового общества. Предлагается методика, основанная на использовании цифровых образовательных ресурсов, имитирующих виртуальную городскую среду. Основная цель состоит в том, чтобы определить и обосновать эту методологию, основанную на достижениях компьютерной психолингвистики, нейролингвистики и цифровой нейропедагогики. Центральная гипотеза исследования заключается в том, что

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of computer-mediated digital didactic technologies. In this sense, various electronic educational resources are explored that allow recreating communicative situations typical of urban planning, both in real and virtual spaces. The study is based on the analysis of a variety of educational communicative situations of virtual urban planning, taking the process of learning a foreign language itself as the research object. To do this, analogous situations of the real environment of a city are compared with the simulation of a virtual urban space. Through this analysis, we seek to clarify the concepts of "communicative competence", "virtual urbanism" and "digital technologies".

**Keywords:** communicative competence, digital technologies, post-pedagogy, neuro-didactics, foreign language teaching, virtual urbanism.

пониманию процесса изучения иностранного языка с акцентом на особенности нейрокогнитивных связей способствует использование компьютерных цифровых дидактических технологий. В этом смысле исследуются различные электронные образовательные ресурсы, позволяющие воссоздавать коммуникативные ситуации, характерные для городского планирования, как в реальном, так и в виртуальном пространстве. Исследование основано на анализе разнообразных образовательных коммуникативных ситуаций виртуального градостроительства, в качестве объекта исследования берется сам процесс изучения иностранного языка. Для этого аналогичные ситуации реальной городской среды сравниваются с моделированием виртуального городского пространства. Посредством этого анализа мы стремимся прояснить понятия "коммуникативная компетентность", "виртуальный урбанизм" и "цифровые технологии".

**Ключевые слова:** коммуникативная компетентность, цифровые технологии, пост-педагогика, нейродидактика, обучение иностранному языку, виртуальная урбанистика.

## Introduction

The introduction outlines the main concern of the discussed topic, which is that digital technologies immerse students as much as possible into the linguistic culture of the target language through virtual urbanism simulation tools. This allows for an introduction to the history, culture, architecture, geography and art of the target country in a virtual environment, as well as practice in simulated scenarios in a fictional "alien" city space. The authors suggest exploring how the digital representation of the target country could serve as a basis for teaching the foreign language, similar to a real visit to the target country (DeWitt & Chan, 2019). The novelty and relevance of the author's work stem from the fact that the effective use of elements of virtual urbanism in teaching a foreign language simulates authentic and realistic details of the linguistic culture being studied, thereby enhancing the effectiveness of improving students' communicative bilingual skills based on a digital analogue of the target country.

The research methodology is grounded in a rethinking of the fundamentals of teaching English as a foreign language within the context of international business, but the role of digital analogues of countries, regions, cities, and various localities as simulators for speech, linguistic, and cultural realities has not yet been adequately explored at this point. The author's hypothesis is based on the concept of a digital twin, which is formed in the fields of engineering, technology, and applied mathematics. This concept implies a set of mathematical formulas that describe both the object and the processes that occur within it (David et al., 2018; Liljaniemi & Paavilainen, 2020).

The sociotechnical approach to modern neuropedagogy, which focuses on the formation of communicative bi- and multilingual competencies among students, is based on an understanding of digital twin technologies. This approach takes into account the neurocognitive phenomenon of mediated communication, also known as the "phantom of mediated communication."

Additionally, the authors discuss the widespread view that social networks are merely a communication tool. They draw attention to the fact that social networks can also be considered a digital analogue of real-life communication within a specific linguistic and cultural context. The authors analyze in detail the

correspondence and interaction between various types of learning, including analog, interactive, and neuro-simulation learning. They note that modern digital educational innovations in the fields of bilingualism and multilingualism use multicategorical tools that are based on neuropsychological mechanisms of the human brain, such as game simulators that affect different brain centers. The game form of learning transforms personal boundaries, bringing digital language simulators closer to professional simulators using a system of punishments for violating the rules and focusing on pain zones rather than comfort zones.

Modern digital technologies have become an integral feature of modern society, which is characterized by the blurring of boundaries between different types of settlements with the priority of the very possibility of full-fledged communicative interaction.

### Literature Review

The analysis of scientific publications on the problem of using artificial intelligence technologies in teaching a foreign language has allowed us to identify several areas of research within the framework of this topic. Most authors recognize the inevitability of using artificial intelligence in the educational process and call ChatGPT "Wikipedia at a new technological level", believing that the educational community will have to adapt its practice to changes (Ivakhnenko & Nikolskiy, 2023: 19).

In the scientific literature, there are many examples of the use of intelligent dialogue systems as a tool for teaching a foreign language (Kurebayeva et al, 2023; Ingerpuu-Rümmel, 2018; Islam, 2020; Makhlof, 2021; Zou et al., 2023; Zubanova et al., 2021).

The formation of communicative bi-/multilingual competence uses the achievements of digital neuro-pedagogy (Honcharuk et al., 2023; Sidun et al., 2023) Digital technologies used today in teaching foreign languages reveal a correlation between the quality of a new type of pedagogical tools and the specifics of the functioning of the human brain in the direction of the development of common cognitive connections. The postulated metacognitive approach (Byzova et al., 2019) can be useful for increasing the level of self-awareness and metacognitive functions of the brain using digital technologies for learning foreign languages (Fu et al., 2023).

According to teachers with experience in using virtual assistants and chatbots, these tools contribute to more effective learning of foreign language vocabulary and grammar, as well as improving speech skills. They also help students develop independent work skills and increase their communicative competence (Kooli, 2023; Vázquez-Cano et al, 2023).

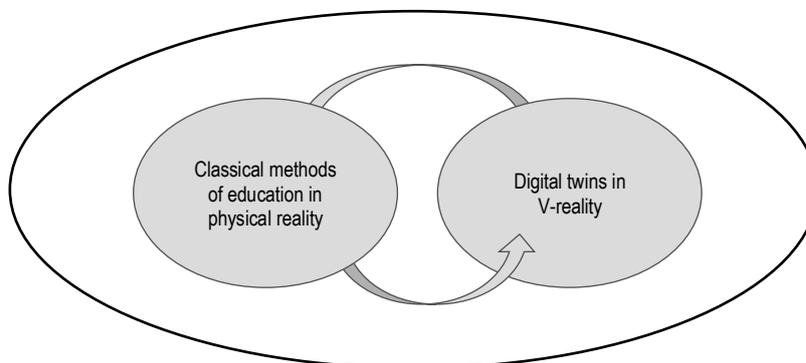
The theoretical and methodological basis of this study was the achievements of predecessors in the field of:

- Theory & methodology of teaching computer science and information and communication technologies (Lai, 2017);
- Theory of complex graphs (Goertzel, 2021);
- The psychological theory of communication (Entina et al, 2021);
- Theories of urbanism (Bibri et al., 2023);
- Theories of pedagogical communication (Khimich & Terentieva 2023);
- Theories of student & teacher personality formation (Lawrence & Tar, 2018);
- Theories of the use of electronic educational resources (Ibáñez & Díaz, 2023).
- Theories of communication & formation of communicative knowledge (Parker, 2020);
- Skills & abilities (Temirgalinova et al., 2021);
- NLP & machine learning (Klašnja-Milićević et al., 2018);
- Neuro-didactics & neuro-pedagogics (Honcharuk et al., 2023).

A significant part of the research focuses on the disadvantages and risks associated with the use of artificial intelligence (AI) technologies in education (Illingworth, 2023). Among the main drawbacks of chatbots, as discussed in the literature, are the unreliability of generated information and the presence of false content (Dakakni & Safa, 2023). Additionally, most chatbots do not provide links to original sources, which is a significant issue as it prevents users from verifying the authenticity of data and, in principle, they do not know which sources their answers are based on. Given the already low scientific literacy levels of many modern students and the prevalence of various imitation practices, (Bibri et al., 2023; Zubanova et al., 2021)

there is an increased risk that students may not develop critical thinking skills or the ability to search for and process information. Some authors argue that the use of chatbots could lead to a decline in critical thinking abilities and a lack of independent thought. Scientists express concern about the potential negative impact of AI on learning. They worry that the overuse of technology could lead to a generation with poor critical thinking skills, as AI may open a "Pandora's box" in the learning process.

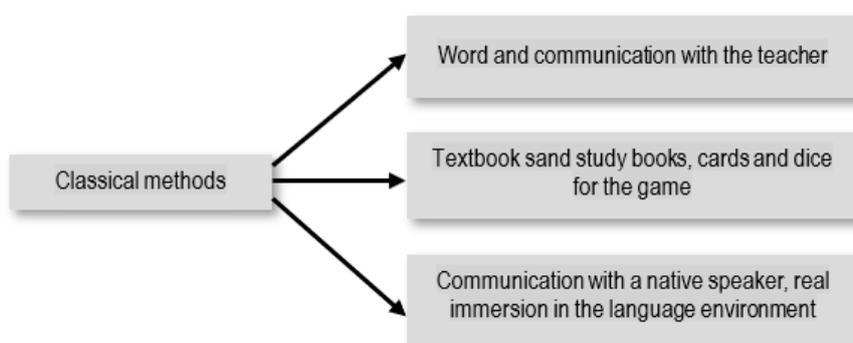
When it comes to the advantages of digital technologies in teaching English as a foreign language, there are several traditional pedagogical tools that can be variable (Fig.1).



**Fig. 1.** Coordination of classical and digital methods in the space of educational technologies. (Compiled by the authors)

Digital technologies have influenced classical methods of forming communicative competencies with duplication in the digital space (Fig. 1). Traditionally, textbooks and workbooks act as the "gold standard" of teaching a foreign language. Digital technologies expand opportunities through online counseling, online tutoring, and digital monitoring within the framework of modern electronic online academic communication. Thus, there is a well-known blending effect at the level of linguistic and cultural competencies.

The V-reality of digital twins began to influence the recipient's experience of objective reality, making adjustments to classical methods of forming communicative competence (Fig. 1). The teacher's work on the formation of digital communicative bi-/multilingual competence is expanding through interactive cooperation, counseling, tutoring, screening, monitoring, and the inclusion of video clips within the framework of electronic online academic communication in the post-pedagogical process (Islam, 2020). For example, traditional textbooks and workbooks serve as the basis for learning both native and foreign languages (Fig.2).



**Fig. 2.** The "gold standard" of the analog classical methodology of teaching a foreign language. (Compiled by the authors)

Digital counterparts of educational technologies offer more dynamic materials (such as online textbooks with VR-immersion), providing personalized deep active learning for both the student and a personalized interactive VR teacher. At the same time, new genres of learning are emerging. For example, in China, interactive recording of student/teacher handwritten texts with simultaneous online recognition on the

screen is widely used, which allows digital calligraphy to be singled out separately. This presentation of written comments, along with honing calligraphy skills, improves the student's communication skills, including writing, speaking and listening skills. Previously, the use of audio recordings and audio cassettes was commonplace to train listening skills. However, there are now many digital resources such as audio files, podcasts, and online listening that offer more diverse and accessible materials to develop these skills. For example, China has created a separate program for teaching English with the provision of linguistic and cultural pronunciation standards.

### Materials and methods

Experimental and empirical material was collected during the practical part of the study at secondary school No. 81 in Karaganda (Kazakhstan), A. Yassavi Secondary School in Turkestan when teaching English in Kazakh classes and Russian-speaking groups of students studying Chinese in language schools based on Heilongjiang University (China). Such linguistic diversity in the teaching of foreign languages of various structures is due to the challenges of modernity and the active interest in English and Chinese in the post-Soviet space. A total of 104 people of middle and high school age took part in the experiment. The experiment was conducted as an anonymous survey.

The use of such subtle methods for mastering new communication skills with the help of a digital double is shown in the section on research methodology: from traditional scholasticism and interactive integrative methods to the method of linguistic digital double. The digital double is considered as a successful technique, as close as possible to reality.

### Methodology

The methods used in this work include analysis, synthesis, analogy, and abstraction. The research is based on the concept of a digital twin, which allows for a comprehensive analysis of all factors that affect the quality of the learning process. The research is based on the analysis of works by domestic and foreign authors on the problem of using artificial intelligence technologies in modern education.

Within the scope of this study, the authors use the term "digital technologies for the development of communicative competence" to refer specifically to neural networks, conversational agents, and chatbots that are used in the teaching of foreign languages (such as ChatGPT). A chatbot is defined as any computer program that simulates human-like communication with users through text and/or voice interactions (Kohnke, Moorhouse & Zou, 2023) and (Zou et al., 2023).

In the course of the study, the authors developed a questionnaire aimed at identifying the attitude and practice of using artificial intelligence technologies in teaching foreign languages to students in Kazakhstan and China. The survey of students was conducted in April 2023.

The response, depending on age, ranged from 56% to 87%. Respondents were asked to list specific AI tools that they use in the process of learning a foreign language, name the advantages and disadvantages of using these technologies in the process of learning a foreign language, evaluate the quality of AI responses and express their opinion on the future prospects of AI in education. In each of the questions, it was possible to choose several answers aimed at assessing students' perception of artificial intelligence in teaching foreign languages.

In addition, there was a section for notes in the questionnaire where students could briefly describe their attitudes and/or experiences with artificial intelligence, as well as provide examples of specific products they use that rely on AI. These responses allowed for a more qualitative analysis of the survey data.

### Results

Today, the level of digital communicative competence is one of the important markers of the formation of a student's brain, since each mental function has its own development program. As a rule, students studying foreign languages are focused on working with educational tools such as a workbook and a textbook on paper and electronic media. This allows the use of learning technologies in classical and mixed digital versions in terms of screening the dynamics of motivations to acquire knowledge of a foreign language. In

addition, this format allows us to trace the nature and effectiveness of methods for the formation of levels of bilingual communicative competence among students.

The most common complaints of students studying a foreign language with probabilistic "decoding" in a situation of interference and ambiguity of interpretation (table 1).

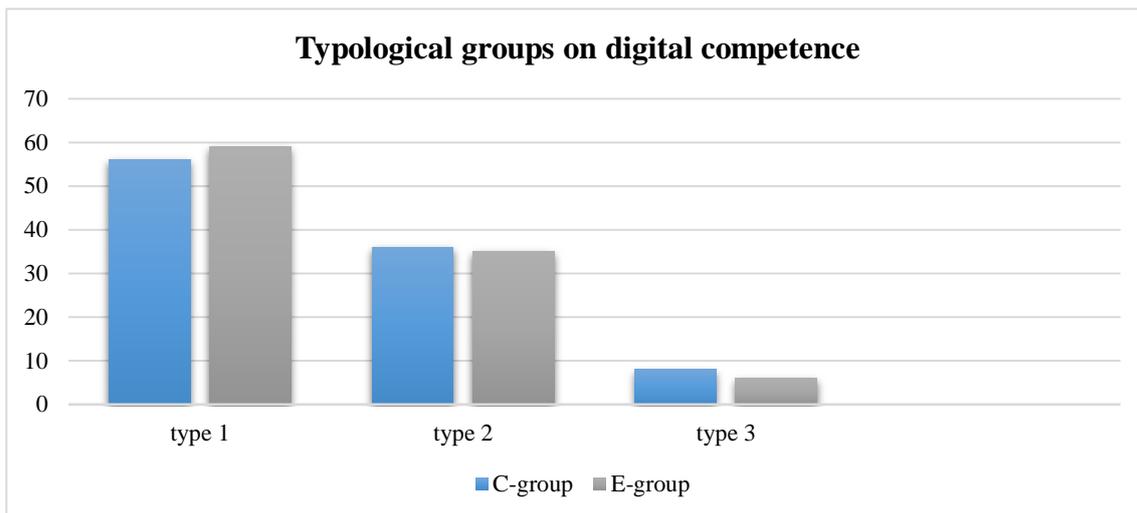
**Table 1.**  
*Neurolinguistic problems in learning a foreign language*

The Identification of the problem	The vector of the problem solution	Frequency of learning a foreign language
"I can't remember", "I forgot", "I miss out", "I partially forget", "I can't learn"	These and similar statements signal the need for enhancing tasks that activate areas responsible for short-term and long-term memory	74%
"I accidentally missed it", "Oh, I didn't notice"	Explanations of this kind indicate the need for additional tasks that develop attention	67%
"I don't understand", "It's not clear", "It's too difficult for me", "It's impossible to remember quickly"	These and similar explanations draw attention to problems with thinking, information processing speed	45%
"I can't imagine", "I can't imagine it, I can't draw this picture internally"	Here it is necessary to work with the problem associated with imagination	49%

Often these problems overlap with each other, blocking motivation to learn a foreign language. The lack of visual support makes it difficult to learn a foreign language to a significant extent. This is especially true for the problem of learning Chinese, which has a different principle than the alphabetical-alphabetic structure of English, Kazakh or Russian languages.

These complaints of students are not far-fetched, but they serve as triggers for the teacher when composing tasks in learning a foreign language, which are associated with some problems of maturation of mental functions, which is important to take into account when drawing up the curriculum. Modern students differ from their teachers in living and learning conditions, using previously unknown ways to achieve their goals (Entina et al., 2021), which allowed us to conclude about the evolution of thought processes in a new generation of "digital aborigines" in contrast to the previous generation of the analog world. "Digital" generations, in addition to the different nature of the thought process, have developed other ways of concentrating attention with a high degree of intensity and combining cognitive skills, which is unusual for people formed in the pre-digital era (Karabulatova et al., 2021).

The first stage of the experiment on the formation of communicative competence consisted in checking the students' degree of formation of communicative competence before conducting experimental work. For this purpose, pre-project testing was carried out, which included a developed questionnaire of 15 questions. Based on this, the estimated allowable maximum number of points is 15 possible points, with an average score ranging from 7.2 to 7.5 points. All the subjects were divided into three groups depending on the typology of communicative competencies. These three typological groups were also considered at the level of the control group (C) and the experimental (E) group, demonstrating differences in the levels of communicative competence in the conditions of the use of digital technologies (Fig.3).



**Fig. 3.** The diagram of the representation of typological groups on the communicative competencies of the digital format in the control and experimental versions. (Compiled by the authors)

*The first typological group* combined students with fragmentary knowledge of communicative competencies and the structure of communicative activity. These students do not understand the importance and significance of communication skills in a foreign language in their present and future professional activities, do not have a vision of their life path. This group of students is characterized by an unwillingness to learn, to understand the peculiarities of the implementation of communicative skills in the conditions of digital communication, does not show interest in communicative activity in a foreign language in a digital and analog environment, representing a difficulty for teachers due to the weak expression of communicative qualities and immaturity of personal characteristics important for building mutual understanding with others. The indicators of the C-group amounted to 56% of the total number of participants. The indicators of the E-group amounted to 59%.

*The second typological group* brought together students who have, to one degree or another, a basic set of knowledge about communicative competencies, about the characteristics of communicative activity, about the features of the implementation of communicative competencies in digital communication. These students have an idea of how to use telecommunications in their own academic activities, but they do not attach much importance to the role of communicative activity in their future professional activities, apply communicative competencies depending on their own interests. Students of this group are characterized by the presence of such communicative personality traits as tolerance, social perception, social attraction for mutual understanding with other people. At the same time, representatives of this group show these qualities selectively, depending on their own interests. The indicators of the C-group amounted to 36% of the total number of participants. The indicators of the E-group amounted to 35%.

*The third typological group* consists of students who possess systematic knowledge about communicative competence as a valuable quality of personality, presenting in detail the entire structure of communicative activity within the framework of academic activities and their own professional interests. The indicators of the C-group amounted to 8% of the total number of participants. The indicators of the E-group amounted to 6%.

The second stage was implemented in the developed system of classes with immersion in the reality of digital counterparts of foreign linguistic culture, allowing to model the spheres of personal and professional space of students:

- 1) Personal space "birthday" + digital twin "VR-family" + ontology "proper names" + ontology "kinship systems" = modeling of the digital twin "Celebration birthday" through the study of the topic "Birthday: proper names and the kinship system";
- 2) Social space "going to the store" + digital double "supermarket" + ontology "consumer goods" = modeling of the digital double "customer behavior in the store" through the study of the topic in a foreign language "Shopping in the store: articles and nouns";

- 3) The sphere of intimate experiences "my day" through reconstruction "The events of my day: regular past tense verbs", or introspection "My interests: irregular past tense verbs", etc.

Dynamic monitoring in the process of formation of bi-/multilingual communicative competencies in students is shown in the table below (Table 2). This made it possible to understand the specifics of the evolution of communicative knowledge, skills and abilities based on the use of digital technologies among the younger generation of "digital aborigines".

**Table 2.**

*Dynamics of the formation of communicative competencies among students in different typological groups*

Typological group of formation of communicative competencies	Stage 1 results (%)						Stage 2 results (%)					
	C-group			E-group			C-group			E-group		
	1	2	3	1	2	3	1	2	3	1	2	3
The first typological group with a low level of competence	52	60	56	61	58	69	48	52	56	45	50	43
The second typological group with an average level of competence	36	32	40	33	38	34	40	40	36	41	32	39
The third typological group with a high level of competence	12	8	4	6	4	7	12	8	8	14	8	18

(Compiled by the authors)

The tasks of the first stage included digital technologies aimed at the formation of communicative competence using the means of basic electronic educational resources (e-mail, electronic teleconferences, IRC - Internet Relay Chat, university and other independent educational sites, public free educational sites, virtual libraries, virtual excursions, telecommunications facilities for conducting training Olympiads, contests and quizzes).

The more advanced levels of the second and third types include such special resources as the electronic learning course English learning course (Media House), demonstration software tools, as well as electronic dictionaries of the ABBYY Lingvo series, Oxford Advanced Learner's Dictionary. Digital resources such as online courses, video lectures and audio materials offer students wide access to high-quality educational content in English. Artificial intelligence programs and adaptive learning algorithms are aimed at creating individual adaptive educational systems that not only have the ability to fully analyze the level of knowledge of each student, but can also offer personalized materials and tasks for the effective development of individual needs. This allows students to develop their communication skills in a more optimal way.

"Digital aborigines" feel at ease in the linguistic and cultural space of digital counterparts, actively using mobile applications and games that allow students to increase their communicative competence (Nelson & Ahn, 2021). Such applications usually contain tasks that develop vocabulary, improve grammatical skills and simulate live communication, which provides an instant feedback effect. Some notable applications in this area are Duolingo and Rosetta Stone. The introverted accentuation of communication by "digital aborigines" has increased interest in video games, which allow the use of a variety of role models with many ethnocultural attributes. Based on this, it is believed that differences in cultural background have a great impact on players. However, modeling the video game space relies on real/unreal geography in accordance with the linguistic and geographical picture of the world, which improves communication skills. As a result, geographical, spatial competence is formed with the norms of speech and behavioral standards, ensuring the survival of an individual in an alien environment (geographical, cultural, linguistic). Consequently, communicative competence in the game is combined with environmental behavior, knowledge of historical and cultural norms and adaptation to the environment. This is also evidenced by the popular literature of the fantasy genre among the younger generation with a focus on LitRPG, promoting the concept of "game as life and life as a game". Consequently, the metaverse of video games is aimed at adapting the speech and behavioral standard of users in a stressful foreign cultural environment, which avoids the negative influence of the "friend-foe" opposition in an unfamiliar cultural background. From the point of view of pedagogy and psychology, the game is one of the priority methods of formation and

transformation of the human speech and behavioral matrix. The indisputable recognition of the gaming context as an entertaining educational process makes it possible to model the gradual development of educational and communicative skills, skills and knowledge in both native and foreign languages. Our data confirm the results of other researchers that computer games are an example of a "soft power" policy, developing cognitive skills when immersed in gaming reality using a foreign language of presentation.

Social networks reveal a larger spread. *Instagram Facebook, VKontakte, Telegram, Tick-Tok, WeChat* are used by Kazakhstani participants. Russian participants use only permitted social networks *VKontakte, Odnoklassniki, Telegram*, also bypassing restrictions in *Instagram, Facebook, Tick-Tok, WeChat*. Chinese students are guided by *WeChat, VKontakte, Tick-Tok* social networks. This allows students to come into contact with native speakers of foreign languages, practice written communication and take part in discussions on various topics. Creating an online community or using specialized learning platforms can facilitate communication and knowledge sharing between students. It can be a forum, a web portal or an application where students can communicate, ask questions, share their experiences and receive feedback from their peers or teachers. Listening to audio and watching videos in English is a great way to improve your listening comprehension and pronunciation skills. There are special platforms such as TED Talks, YouTube and language learning resources where students can find various videos and audio tutorials in English. Digital technologies such as video conferences and online platforms (Zoom, Skype and Google Meet) are effectively used for Kazakh and Russian schoolchildren studying English, which allow students to communicate with native speakers in practice, practice conversational skills and receive feedback on their pronunciation and grammar. Virtual reality technology can create an immersive learning environment where students can interact with English in a realistic situation. For example, they can immerse themselves in an English-speaking environment and communicate with virtual characters in English, which will help them develop communication skills and confidence in communication.

## Discussion

The very concept of communicative competence as a certain basic characteristic of a person implies communicative knowledge, skills, abilities of an individual to consciously select language means for communication in accordance with the speech situation, adequately perceive oral and written speech and reproduce its content to the required extent, create their own logically related expressions of various genre and stylistic orientation.

Therefore, the analysis of the scientific literature on this issue regarding the understanding of the meaning of the concept of "competence" has allowed us to identify such terminological subspaces as:

- Language combination (Paramarta et al., 2022);
- Linguistic competition (Xu, 2023)
- Decisive campaign (Ingerpuu-Rümmel, 2018);
- Sociolinguistic competition (Alenazi, 2022);
- Discursive combination (Bizzo, 2022);
- Digital strategies (Ivakhnenko & Nikolskiy, 2023);
- Combinational strategies (Karabulatova et al., 2021);
- Socio-pragmatic strategies (Mikhailenko & Zharkova, 2023)
- Socio-cultural competence (Mäkipää, 2021);
- Subject-object's competence (Zubanova et al., 2021);
- Dynamic compatibility (Goertzel, 2021).

At the same time, the researchers emphasize the particular complexity of the formation of communicative competence in a foreign language, since communicative competence in teaching a foreign language is a set of knowledge of the language system and its units, their construction and operation in speech in order to formulate thoughts in the language being studied and understand the judgments of others, about the national-cultural speakers of the language being studied, about the specifics different types of discourses; this is the ability to master language means for communication in various types of speech activity in accordance with communicative tasks, to understand, interpret and produce coherent speech.

Among the countries that have achieved significant results in the formation of communicative competencies in a foreign language, primarily in English, priority belongs to such states as Finland (Mäkipää, 2021),

Estonia (Ingerpuu-Rümmel, 2018), China (Xu, 2023). However, of course, the leading role in teaching English as a foreign language belongs to Great Britain (Postolenko, 2021). Estonia is considered one of the most advanced countries in the field of using digital technologies in education not only in the post-Soviet space, but also in the global educational space, having introduced among the first not only an electronic textbook system, but also electronic portfolios for students, as well as a variety of online courses. In teaching foreign languages, they provide access to various online resources and applications for learning languages. Finland stands out especially from the EU countries, also actively using digital resources and technologies in education. They have developed a platform for teaching foreign languages called "WordDive", which offers personalized courses and trainings using interactive games and exercises. There are many online platforms and applications developed in the UK for teaching foreign languages. For example, *Duolingo*, *Memrise* and *Babbel* are popular apps that help students learn languages through games, exercises and interactive lessons. China is actively using digital technologies in foreign language education. Various online platforms and applications, such as *VIPKid* and *Talk*, offer online lessons with native speakers. English language learning apps that use artificial intelligence to evaluate and correct pronunciation are also widespread in China. Thus, China has been actively using the model of communicative language competence since 2014 (Hu et al., 2023).

At the same time, scientists point out that the leading method is focused on the use of CSE, which not only scientifically describes, but also factually evaluates the language competence of students, focusing on the clarity of intuitive parameters characteristic of each level of language competence in the category "I can". It is no coincidence that Chinese researchers emphasize that digitalization as a phenomenon of modern education does not coincide in its borders with the transformation of a student's personality under the influence of digital learning strategies.

Kazakhstan and Russia are also actively developing and implementing digital technologies in the field of teaching foreign languages. In Kazakhstan, the National platform "eTandem" provides an opportunity for the exchange of language skills between native speakers of different languages through videoconferences. There are also various educational portals and platforms in Kazakhstan that offer online resources and applications for learning foreign languages, including Duolingo, Babbel and others. Many online projects and platforms for teaching foreign languages have been developed in Russia. For example, a Digital School is a platform that offers online lessons using interactive exercises, videos and audio recordings. There are also various applications for learning foreign languages, such as BeSpeak and Skyeng, which provide the opportunity to learn with the help of online teachers. Kazakhstan and Russia are actively working to improve the accessibility and quality of teaching foreign languages using digital technologies. They also strive to develop innovative methods and approaches to make the learning process more interactive, accessible and effective for students. In addition to using digital platforms and applications, Kazakhstan and Russia are also actively developing and implementing other technologies in the field of teaching foreign languages.

Here are some examples of how digital technologies are superior to traditional pedagogical tools in teaching foreign languages:

1. **Interactive textbooks and Applications:** Digital textbooks and applications offer more interactive materials for learning a foreign language. They can contain audio and video files, exercises, games and tests that help students actively interact with the language, develop listening, reading, speaking and writing skills. Digital teaching materials have great functional advantages in distance learning, in the organization of independent work of schoolchildren and students. They are particularly in demand in practical classes due to the possibility of reducing the time spent on routine tasks.
2. **Online Resources and Video Tutorials:** There are many online resources and platforms where students can find video tutorials, audio recordings, texts, interactive assignments and other materials for self-study. They can choose lessons according to their level and interests, as well as study materials at a convenient time.
3. **Virtual classes and real-time learning:** With the help of digital technologies, virtual classes and lessons can be conducted in real time. Students can see and hear the teacher, interact with him and other students, ask questions and receive feedback directly on the screen of their device. This is especially useful for remote learning or for access to learning for those who live in remote locations or have limited opportunities to attend school.
4. **Adaptive tests and exercises:** With the help of digital technologies, it is possible to create adaptive tests and exercises that adapt to the level and needs of each student. They can offer an additional exercise

in case of an incorrect answer, skip materials known to the student and focus on weaknesses, as well as offer rewards and incentives for motivation.

5. Multimedia resources: Digital technologies offer a wide range of multimedia resources, such as audio, video, images and interactive graphics. They can be used to diversify the learning process, enrich the material and create a more realistic and stimulating learning environment.

## Conclusion

However, the use of digital technologies requires clear regulation, taking into account social and age psychology. In addition, compression of the presentation of the material increases the possibilities of distraction in virtual reality, and excessive enthusiasm for the use of digital technologies transforms the user's speech and behavioral profile to one degree or another. In this regard, the digital divide is increasing not only on the basis of socio-economic inequality, but also against the background of sanctions imposed during the first digital information war, as well as taking into account the development of digital sovereignty of countries and the development of information security provisions. The digital twin is an important part of the formation of the linguistic image of the country of the studied language, which affects the perception of reality.

Firstly, digital bi-/multilingual communicative competence is formed in that priority area for a language user during a certain period of life.

Secondly, virtual reality and digital counterparts of the countries of the studied cultures help to study informally, both in a certain cohort group, and with individual training, or with independent training with a digital assistant.

Digital technologies also provide students with access to a huge number of authentic materials in a foreign language, such as videos, audio recordings, articles and books. This helps students to expand their vocabulary, improve listening and reading skills, as well as immerse themselves in the linguistic culture of the studied country.

In conclusion, digital technologies provide many advantages in the formation of communicative competence in teaching a foreign language, including accessibility, interactivity, individualization and access to a variety of materials.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.18>

How to Cite:  
Kovalchuk, O., Kolesnikov, A., Koshmanov, M., Dobrianska, N., & Polonka, I. (2024). Rethinking the concept of punishment: modeling the level of danger posed by criminals to society. *Amazonia Investiga*, 13(77), 246-256.  
<https://doi.org/10.34069/AI/2024.77.05.18>

## Rethinking the concept of punishment: modeling the level of danger posed by criminals to society

Переосмислення концепції покарання:  
моделювання рівня небезпеки, який становлять злочинці для суспільства

Received: March 12, 2024

Accepted: April 25, 2024

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### Abstract

The rapid increase in crime rates in many countries is evidence of the ineffectiveness of the current punishment system and the need to rethink the existing approach to applying punitive sanctions to criminals, taking into account the threat they pose to others. This study aims to build an analytical model for an objective assessment of the level of danger posed by suspects (convicts/prisoners) to society, based on their socio-demographic characteristics and data on previous criminal activity. To achieve this goal, discriminant canonical analysis is used as a multivariate statistical method for classifying objects. The empirical base consisted of data on 13,010 convicts serving sentences in penitentiary institutions in Ukraine. Key factors that have a significant impact on the distribution of criminals

### Анотація

Стрімке зростання рівня злочинності в багатьох країнах є свідченням неадекватності наявної системи покарань та необхідності переосмислення існуючого підходу до застосування каральних санкцій до злочинців з врахуванням загрози, яку вони становлять для оточуючих. Це дослідження ставить за мету побудувати аналітичну модель для об'єктивної оцінки рівня небезпеки, яку становлять підозрювані (засуджені/ув'язнені) для суспільства, на основі їхніх соціально-демографічних характеристик та даних про попередню злочинну діяльність. Для досягнення поставленої мети використано дискримінантний канонічний аналіз як багатофакторний статистичний метод класифікації об'єктів за групами. Емпіричну

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into groups (high, moderate, low) according to the level of danger they pose to society have been identified: the age at which a person was first sentenced, early dismissals, suspended convictions, education level, type of employment, the motivation for dismissal. An optimal canonical discriminant model has been constructed that allows for the accurate classification of new cases into the identified groups. The results obtained can be used in the judicial system, probation services, and law enforcement agencies to make informed decisions regarding the measure of punishment, parole, level of supervision, and ensuring public safety. The proposed applied solution can be integrated into an automated analytical system to increase the efficiency of the judicial system.

**Keywords:** judicial system, fair punishment, public safety, criminal behavior, digitalization, information technology, discriminant analysis, analytical model, court decisions, court.

базу склали дані про 13010 засуджених, які відбувають покарання в установах виконання покарань України. Виявлено ключові фактори, які мають суттєвий вплив на розподіл злочинців на групи (high, moderate, low) за рівнем небезпеки, яку вони становлять для суспільства: the age at which a person was first sentenced, early dismissals, suspended convictions, education level, type of employment, the motivation for dismissal. Побудовано оптимальну канонічну дискримінантну модель, що дозволяє точно класифікувати нові випадки за виділеними групами. Отримані результати можуть бути використані в судовій системі, службами пробації та правоохоронними органами для прийняття обґрунтованих рішень щодо міри покарання, умовно-дострокового звільнення, рівня нагляду й забезпечення безпеки громадян. Запропоноване прикладне рішення може бути інтегровано в автоматизовану аналітичну систему для підвищення ефективності системи судочинства.

**Ключові слова:** судова система, справедливість покарання, суспільна безпека, злочинна поведінка, цифровізація, інформаційні технології, дискримінантний аналіз, аналітична модель, судові рішення, суд.

## Introduction

The crime rate is steadily increasing in many countries, causing serious concern in society and posing new challenges for law enforcement and justice systems (Gruszczynska & Gruszczynski, 2023). This trend poses a serious threat to public safety and negatively affects economic development (Galinari & Bazon, 2021; Anser et al., 2020; Adela & Aldhaheri, 2024) undermines citizens' sense of security, and causes a decline in trust in law enforcement and the judicial system (Kulachai & Cheurprakobkit, 2023). The current trends require a comprehensive analysis of the reasons for such negative dynamics and the development of effective ways to counteract this phenomenon at the international and national levels. At the same time, the fight against crime requires a comprehensive approach, which includes not only increasing the efficiency of law enforcement agencies but also taking into account the "prison paradox", according to which an increase in the number of prisoners does not have a significant impact on reducing crime and causes additional costs (Stemen, 2017).

Society must be aware that not all criminals are hardened and incorrigible. Often, people commit illegal acts due to a combination of circumstances, recklessness, or the influence of a negative environment. In such cases, it is advisable to distinguish between offenders who do not pose a significant threat to society and hardened criminal elements. Providing prospects for resocialization and correction for the first category reduces the burden on the penitentiary system and opens the way for these people to return to a law-abiding society. The issue of giving a chance for correction to certain categories of offenders is relevant and justified (Letlape & Dube, 2023). Applying rehabilitation programs, psychological support, vocational training, and involvement in socially useful work to them, provided that they sincerely repent and desire to be corrected, may be a more effective approach than simply isolating them. This will save resources and at the same time preserve the chance for a dignified life for those who can realize their mistakes (Legodi & Dube, 2023). At the same time, the approach to hardened, incorrigible criminals should be strict and uncompromising, as they have consciously chosen the illegal path and pose a significant threat to public safety. They should be subject to the strictest measures by the law. Distinguishing between offenders and taking an individual approach to each case, taking into account the level of danger they pose to society, is justified and necessary

in terms of humanity and common sense. Giving a chance for correction to those who can get on the path of correction is not indulgence, but an investment in a safe future for society. An effective crime prevention strategy should combine repressive measures with preventive ones, focusing on eliminating the root causes of the problem and creating an enabling environment for the law-abiding behavior of citizens. For effective crime detection and prevention, it is important to analyze the person of the criminal, and not just the fact of committing the crime (Kamaluddin et al., 2021). Focusing on the criminal and the danger they pose to others, and not just on the crime itself, allows for a better understanding of the causes of illegal behavior, identifying risk factors, the level of threat to society, and developing individual approaches to rehabilitation and resocialization.

An objective assessment of the level of danger that a suspect (convict/prisoner) poses to society is an important element in ensuring the rule of law, justice, a balance of interests, and increasing the efficiency of the judicial system. Such an assessment is based on a comprehensive analysis of various individual characteristics to determine a person's propensity to repeat illegal actions, their social adaptability, and the possibility of successful resocialization after release. The obtained information can help the court impose a punishment that corresponds to the degree of public threat posed by the committed crime and the personality of the offender. This contributes to the realization of the principle of justice as a fundamental principle of the judiciary. Taking into account the danger posed by the convicted person to others makes it possible to individualize the punishment given the specific circumstances of the case and the person of the criminal, which corresponds to the general legal principle. Based on such data, the court can properly balance the objectives of punishment for the committed crime and the prevention of possible new offenses in the future. Knowledge about the level of danger that a convict poses to society will allow the court to properly protect public safety and the rights of victims of crime. This creates the prerequisites for choosing appropriate rehabilitation measures and programs for the successful resocialization of offenders after serving their sentences. Taking into account objective data on the level of threat posed by the accused to others when passing sentences makes the judicial process more understandable and acceptable to society.

These are important guidelines for the court when making decisions regarding punishment, parole, pardon, and ensuring safety in the administration of justice. It is also one of the key factors that the court takes into account when choosing the type and length of punishment. Assessing the level of danger that an offender poses to society allows the court to assess the risks and make a reasoned decision about the possibility of early release or the need to serve the full term of punishment (Kovalchuk et al., 2023a). The court can use information about the level of danger to establish additional restrictions or obligations for the convicted person after their release, for example, a ban on approaching certain places or persons, and to take the necessary safety measures during the trial.

Information about the level of danger that a convicted person poses to society is important for a wide range of institutions, including courts, penitentiary institutions, and institutions for the resocialization of offenders. Penitentiary institutions use this information for the proper distribution of convicts by detention regimes, ensuring the safety of staff and other inmates. Probation officers must have this data to properly organize supervision and social support for convicts after release. Assessing the danger that criminals pose to society helps the police and law enforcement agencies determine priorities, plan crime prevention measures, and ensure proper supervision of released convicts. Such data is used for planning rehabilitation and resocialization programs for convicts. Psychological and psychiatric institutions use this information to determine necessary therapeutic measures, reduce risks, and correct the behavior of convicts. The rapid increase in the amount of data that needs to be considered in the administration of justice is one of the key reasons for the need to automate the determination of the level of danger that a convicted person poses to society. For an objective assessment, a huge number of factors must be taken into account, from biographical data to psychological profiles and details of criminal cases (Onyeneke & Karam, 2022; Kovalchuk et al., 2023b). Manual processing of such a large amount of information is becoming increasingly difficult. In the digital age, a lot of information about a person's behavior, connections, and intentions is contained in their online activity, social networks, etc. Analyzing this "digital footprint" requires specialized tools. In addition, to fully assess the level of danger that criminals pose to society, it is necessary to consolidate and process information from various sources - from police databases to social services. Modern jurisprudence requires a rapid response, so manual processing of large amounts of data can no longer keep up with the needs.

For the effective functioning of the justice system, it is an objective necessity to automate the assessment of the danger that convicts pose to society. Effective tools for implementing this process can be statistical

methods and the latest information technologies. Applied models built on their basis are capable of quickly and qualitatively analyzing large information arrays and identifying patterns and trends in determining the level of danger posed by certain categories of convicts. They can also be applied to new datasets about criminals. Such models are based on statistical data and algorithms, which increases impartiality and eliminates possible human factors. Algorithmization ensures consistency of assessment by applying the same criteria to all cases, unlike human expert analysis, where deviations are possible. Analytical models can provide significant objective knowledge in assessing the level of danger that criminals pose to society, and simplify and accelerate this process. For Ukraine, such studies are innovative. So far, the assessment of the danger that criminals pose to society is carried out manually, which necessitates the urgent need to develop reliable applied solutions.

The purpose of this study is to build an analytical model for assessing the level of danger posed by suspects (convicts/prisoners) to society, based on their socio-demographic characteristics and information about previous criminal activity. The study objectives are formulated to:

- Identify the main factors influencing the distribution of suspects (convicts/prisoners) into groups (high, moderate, low) according to the level of danger they pose to society;
- Assess the magnitude of the influence of each of the identified factors in the distribution of criminals into the selected groups.
- Record the optimal analytical discriminant model for assessing the level of danger posed to society by suspects (convicts/prisoners) who were not included in the initial dataset.

### Literature Review

The issue of ensuring fairness in punishment and finding alternatives to incarceration is one of the most pressing and debated topics in academic and legal circles. However, most existing studies have certain limitations, as they focus on a narrow category of crimes or offenders and often have a pronounced territorial specificity – based on the peculiarities of national legislations, principles, and approaches to sentencing, as well as forms of serving sentences in a particular country or region (Wang & Zhang, 2023). O. Arandjelović analyzed incarceration and its admissibility as a punitive instrument of justice. He demonstrated that incarceration does not meet the key criteria for fair punishment and can be adequately mitigated, under the severity of the crime (Arandjelović, 2023). The authors B. Gruszczyńska and M. Gruszczyński evaluated the relationship between crime rates and the number of prisoners in European countries based on a correlation-regression analysis of four types of offenses: assault, rape, robbery, and theft. The researchers found that the level of prison occupancy is directly related to the peculiarities of the state's criminal law policy, in particular, the harshness or liberalism in matters of choosing the measure of punishment and determining the terms of imprisonment for offenders Gruszczyńska & Gruszczyński, 2023). S. Caridade et al., analyzed the individual and social environment associated with criminal activity (Caridade, 2022). K.M. Berezka et al. found that early involvement in the criminal environment is a significant risk factor for committing repeated offenses (Berezka et al., 2022). Many studies on identifying non-obvious signs associated with a person's future criminal activity and decision-making regarding crime prevention specifically concern crimes committed in adolescence. Aazami et al., conducted a literature review on risk factors, protective factors, and interventions related to juvenile delinquency (Khachatryan & Heide, 2023; Lee et al., 2023). In their study, they identified multidimensional factors that influence delinquent behavior in adolescents (Aazami et al., 2023). Researchers L.S. Galinari and M.R. Bazon studied the behavioral and psychosocial characteristics of juvenile offenders in Brazil, based on empirical data collected in the context of Brazilian socio-cultural reality. They developed a four-class model, where different profiles were identified, indicating differences between juvenile offenders both in psychological functioning and types of criminal behavior, as well as in psychosocial risk/protective factors associated with each profile. The results obtained can contribute to improving the assessment necessary for informational support of court decisions (Galinari & Bazon, 2021).

The issue of assessing the level of risk that criminals pose to society, imposing fair punishment, and effective alternatives to incarceration is of universal importance and requires comprehensive interdisciplinary study, taking into account global trends, international experience, and the latest achievements in the fields of psychology, jurisprudence, criminology, the penitentiary system, offender rehabilitation, public safety, and the applied use of statistical methods and information technologies. Only

such comprehensive and systematic research can provide answers to pressing challenges and offer balanced and effective solutions in this area.

### Methodological approach and data sources

This article uses a multidisciplinary approach, which involves applying analytical methods and IT tools to process and analyze legal data to obtain new valuable knowledge and support decision-making in the judiciary. One such important decision is determining the level of danger posed by a convict, which ensures a balance between protecting society, implementing the principles of fair justice, and successful reintegration of offenders after serving their sentences.

To create an analytical model for assessing the level of danger posed by criminals to society, discriminant canonical analysis was used (Boedeker & Kearns, 2019). This is a statistical method used to predict the belonging of objects or observations to certain groups or categories based on a set of measured variables. Its main goal is to find a linear combination of independent variables (a discriminant function) that best separates or discriminates between groups. There are several predefined groups or categories to which objects belong. There is a set of independent variables (predictors) that are measured for each object. A discriminant function is constructed, which is a linear combination of independent variables. It maximizes the differences between groups and minimizes the differences within groups. Using the discriminant function, new objects with unknown group membership can be classified into the appropriate group based on their values of the independent variables. Discriminant analysis is a useful tool for identifying the most important variables that distinguish groups and creating classification rules for new observations.

We applied this multivariate statistical method to classify convicts according to the level of danger (high, moderate, low) they pose to society and to identify the most significant predictors for distinguishing these groups. The empirical analysis was performed based on information from the criminal histories of 13,010 convicts serving sentences in penitentiary institutions in Ukraine. The initial dataset contains information about the individual and social characteristics of convicts and their previous criminal activity.

Table 1 presents the variables of the initial dataset, their description, and possible values.

**Table 1.**  
*Input data set description*

Variable	Description	Value
RR	Recidivism rate	Low; moderate; high
AGE	Age at the time of the study	Integer
AAP	Age at which a person was first sentenced to actual imprisonment	1 – age lower than 18; 2 – age between 18 and 30; 3 – age between 30 and 45; 4 – age higher than 45
AAS	Age at which a person was first sentenced to actual imprisonment or given their first suspended sentence	1 – age lower than 18; 2 – age between 18 and 30; 3 – age between 30 and 45; 4 – age higher than 45
ED	Existence of early dismissals	Integer
SC	Number of suspended convictions	Integer
SEX	Sex	1 – male; 2 – female
MS	Marital status	1 – male; 2 – female
EL	Education level	0 – incomplete secondary; 1 – secondary; 2 – special secondary; 3 – incomplete higher, 4 – higher
PR	Place of residence	1 – rural area; 2 – urban area
TE	Type of employment	0 – unemployed; 1 – part-time; 2 – full-time
MD	Motivation for dismissal	0 – no; 1 – yes

For empirical research, the software package Statistica was used (TIBCO, 2024).

### Results and Discussion

Discriminant analysis was used to predict the level of danger (high, moderate, low) that convicts pose to society. One of the conditions for its applicability is the independence of the variables (predictors) used to distinguish between groups. Table 2 presents the correlation coefficients for all pairs of predictors (Boedeker & Kearns, 2019).

**Table 2.**  
*Correlations Matrix, p < 0.05*

Variable	AGE	SEX	AAP	AAS	PR	TE	EL	SC	MS	ED	MD
AGE	1.00	-0.05	0.37	0.34	-0.03	0.06	0.08	-0.01	0.12	0.15	-0.01
SEX	-0.05	1.00	-0.18	-0.18	-0.03	-0.05	-0.02	0.02	0.02	0.08	-0.07
AAP	0.37	-0.18	1.00	0.87	-0.05	0.13	0.18	-0.13	0.11	-0.21	0.06
AAS	0.34	-0.18	0.87	1.00	-0.05	0.13	0.18	-0.23	0.10	-0.23	0.05
PR	-0.03	-0.03	-0.05	-0.05	1.00	0.11	0.15	0.05	-0.01	0.03	0.04
TE	0.06	-0.05	0.13	0.13	0.11	1.00	0.24	-0.06	0.16	0.02	0.16
EL	0.08	-0.02	0.18	0.18	0.15	0.24	1.00	-0.05	0.11	-0.06	0.08
RC	0.25	0.10	0.36	0.35	0.05	-0.09	-0.10	0.12	-0.03	0.41	-0.08
SC	-0.01	0.02	-0.13	-0.23	0.05	-0.06	-0.05	1.00	-0.01	0.19	0.01
MS	0.12	0.02	0.11	0.10	-0.01	0.16	0.22	-0.01	1.00	0.03	0.12
ED	0.15	0.08	-0.21	-0.23	0.03	0.02	-0.06	0.19	0.03	1.00	0.02
MD	-0.01	-0.07	0.06	0.05	0.04	0.16	0.08	0.01	0.12	0.02	1.00

A dense correlation (0.87) is identified only for one pair of variables – AAS and AAS. This means that the earlier a person was involved in the criminal environment (was sentenced to probation or a real measure of punishment), the earlier they ended up in penitentiary institutions. Usually, for a crime that is not serious and committed by a person for the first time, convicts receive a suspended sentence. Therefore, the dense correlation between AAS and AAS may indicate that such offenders commit repeated offenses.

The purpose of the empirical analysis is to find a linear combination of the studied independent variables that best distinguishes between groups of convicts according to the level of danger they pose to society. The Wilks' Lambda value of 0.154  $\in$  [0; 1] and close to 0 (Table 3) means that the discrimination is good.  $F_{0.01}(24, 25991) = 1674.093$ , which is greater than the critical value of the F-distribution:  $F_{0.01}(24, \infty) = 1.73$ . We reject the hypothesis that the observations belong to one group. Therefore, the application of discriminant analysis is justified. The classification of convicts according to the levels of danger they pose to society is correct.

**Table 3.**  
*Discriminant Function Analysis Summary*

N=13010	Wilks' Lambda	Partial Lambda	F-remove (2,12996)	p-value	Toler.	1-Toler. (R-Sgr.)
AGE	0.155405	0.992865	46.70	0.000000	0.697508	0.302492
SEX	0.154332	0.999768	1.51	0.221521	0.963353	0.036647
AAP	0.154296	0.999997	0.02	0.979302	0.258612	0.741388
AAS	0.156452	0.986216	90.82	0.000000	0.272661	0.727339
PR	0.154296	0.999996	0.02	0.977029	0.959792	0.040209
TE	0.154431	0.999123	5.70	0.003348	0.897345	0.102655
EL	0.154408	0.999274	4.72	0.008898	0.906854	0.093146
SC	0.330977	0.466183	7440.73	0.000000	0.608070	0.391930
MS	0.154314	0.999881	0.77	0.460899	0.944172	0.055828
ED	0.157246	0.981241	124.23	0.000000	0.942936	0.057064
MD	0.154424	0.999168	5.41	0.004475	0.955719	0.044281

Table 3 presents the estimates of the discriminant function and predictors for constructing the classification function. The predictors AGE, AAS, TE, EL, SC, ED, and MD have high statistical significance ( $p < 0.01$ ). SEX, AAP, PR, and MS ( $p > 0.05$ ) are not significant for the distribution of convicts into groups according to the level of danger they pose to society. Both Wilks' Lambda and Partial Lambda estimates can take values ranging from 0 to 1. Wilks' Lambda = 0 means complete discrimination, and Wilks' Lambda = 1 means no discrimination. The closer the Partial Lambda value is to 1, the smaller the contribution of the corresponding variable to the discrimination model. The closer this value is to 0, the greater the contribution

of the corresponding variable to the discrimination model. The variable SC has the highest weight for discrimination since Wilks' Lambda = 0.33 for this variable is the highest, and its Partial Lambda value = 0.47 is the lowest among all predictors (Table 3). Therefore, the number of suspended convictions has the greatest impact on the distribution of convicts into groups according to the levels of danger they pose to society. The leniency of the judicial system creates a feeling among criminals that criminal activity may go unpunished. This encourages them to commit new crimes and create threats to others.

F-remove is a statistical measure used to assess the importance of individual predictors (independent variables) in a discriminant model. A high F-remove value for a particular predictor indicates that this predictor makes a significant contribution to the discrimination between groups in the discriminant model, i.e., it is important for classifying observations. A low F-remove value indicates that the corresponding predictor has little influence on classification, and it can be safely removed from the model without significant loss of discriminatory ability. The highest value among all variables F-remove = 7440.73 is for SC. This confirms its greatest influence on discrimination.

Table 4 presents the classification matrix for verifying the correctness of the training samples.

**Table 4.**  
*Classification Matrix*

Group	Rows: Observed classifications Columns: Predicted classifications			
	Percent Correct	High $p = 0.13$	Moderate $p = 0.32$	Low $p = 0.54$
High	97.64	1698	41	0
Moderate	98.55	0	3862	57
Low	99.17	0	61	7291
Total	98.45	1698	3964	7348

From the obtained classification matrix, we can conclude that 159 out of 13,010 convicts were incorrectly assigned to the identified groups based on the level of danger they posed to society (Table 4). However, the squared Mahalanobis distances of these objects to the groups they were assigned to are smaller than the distances to the centers of other groups (Table 5). For example, for object 8, the squared Mahalanobis distance to the "high" group it was assigned to is 16.11. It is smaller than the distances to the centers of other groups – 16.17 to the "moderate" group and 34.04 to the "low" group. Therefore, the classification of these objects into the previously identified groups is correct. There is no reason to exclude these objects from the analyzed sample.

**Table 5.**  
*Squared Mahalanobis Distances from Group Centroids (fragment)*

Case	Observed Classif.	High $p = 0.13$	Moderate $p = 0.32$	Low $p = 0.54$
*8	High	16.11	16.17	34.04
*18	High	17.68	18.80	36.81
*48	High	13.28	13.44	26.77
*71	High	9.99	10.63	31.57
*252	Moderate	28.62	6.83	6.90
*296	Moderate	27.81	6.30	7.16
*307	Moderate	32.65	11.30	12.30
*360	Moderate	29.23	5.48	6.05
*327	High	11.23	11.82	30.40
*775	High	6.70	8.31	28.34
*1334	Moderate	38.81	14.01	14.13
*1782	Moderate	27.81	6.30	7.16
*2305	High	15.60	16.40	31.40
*3611	Moderate	31.18	5.84	6.25
*4608	Moderate	31.71	9.41	9.98
*4962	Low	46.87	14.24	14.06
*5464	Low	51.76	17.26	17.18
*5803	Moderate	39.40	14.66	14.77
*7802	Moderate Moderate	30.96	7.18	8.00
*9443	High	29.23	5.48	6.05
*12993		23.42	23.51	39.97
*13006	Moderate	31.71	9.41	9.98

Table 6 presents the estimates of the discriminant function. The Wilks' Lambda value (0.15) indicates the presence of a difference between the groups. In discriminant analysis, Wilks' Lambda is an estimate of the influence of each level of the independent variable on the model and is measured from 0 to 1. Wilks' Lambda equal to 0 means complete discrimination, and equality to 1 means no discrimination (Statistics How To, 2024).

The value of the canonical correlation coefficient R equal to 0.91 indicates the existence of a strong correlation. The calculated value of the Chi-squared test  $\chi^2(24) = 24298.30$  for  $p < 0.01$  is greater than the critical value  $\chi^2(24) = 10.856$ . Therefore, there is a strong relationship between the discriminant function and the identified groups of danger that convicts pose to society (Table 6).

**Table 6.**  
*Chi-Square Tests with Successive Roots Removed*

Roots Removed	Eigen-value	Canonical R	Wilks' Lambda	Chi-Sgr.	Df	p-value
0	5.088689	0.914200	0.154296	24298.30	24	0.00

We performed classification based on the classification functions. The method finds a linear combination of predictor variables (the discriminant function) that maximizes the difference between groups and minimizes variation within the group (Boedeker & Kearns, 2019). Table 7 presents the coefficients of the classification function for each class.

**Table 7.**  
*Classification Functions; grouping: RR*

Variable	High $p = 0.13$	Moderate $p = 0.32$	Low $p = 0.54$
AGE	7.73	6.33	5.14
SEX	17.67	17.56	17.31
AAP	0.95	2.16	3.81
AAS	0.30	0.28	1.36
PR	3.02	2.77	2.63
TE	0.19	0.31	0.52
EL	0.34	0.34	0.45
SC	2.63	1.41	0.49
MS	-1.77	-1.55	-1.51
ED	2.36	1.44	-0.22
MD	8.00	8.22	8.65
Constant	-32.69	-27.10	-26.05

The analytical representation of the optimal (containing only significant predictors) canonical discriminant model is presented as follows:

$$\text{high} = -32.69 + 7.73 \times \text{AGE} + 0.30 \times \text{AAS} + 0.19 \times \text{TE} + 0.34 \times \text{EL} + 2.63 \times \text{SC} + 2.36 \times \text{ED} + 8.00 \times \text{MD};$$

$$\text{moderate} = -27.10 + 6.33 \times \text{AGE} + 0.28 \times \text{AAS} + 0.31 \times \text{TE} + 0.34 \times \text{EL} + 1.41 \times \text{SC} + 1.44 \times \text{ED} + 8.22 \times \text{MD};$$

$$\text{low} = -26.05 + 5.14 \times \text{AGE} + 1.36 \times \text{AAS} + 0.52 \times \text{TE} + 0.45 \times \text{EL} + 0.49 \times \text{SC} - 0.22 \times \text{ED} + 8.65 \times \text{MD},$$

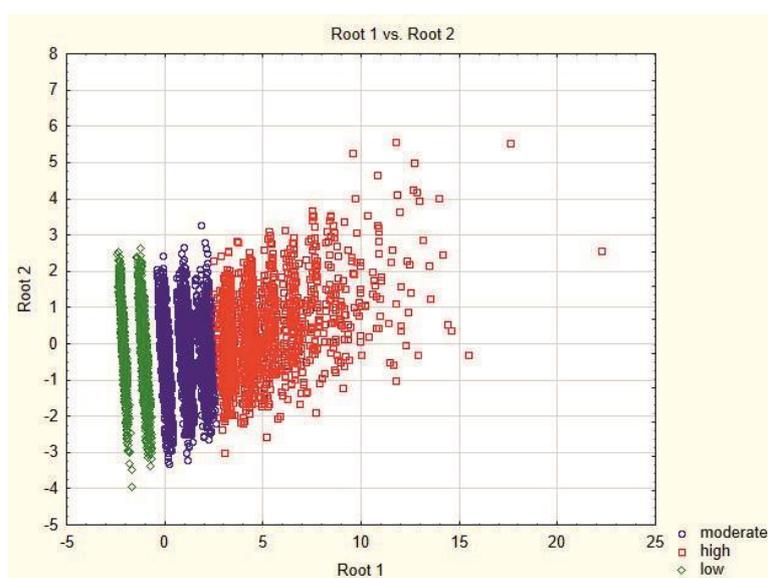
where AGE is the age at the time of the study, AAS is the age at which a person was first sentenced to actual imprisonment or given their first suspended sentence, ED is early dismissals, SC is several suspended convictions, EL is education level, TE is a type of employment, MD is the motivation for dismissal.

Thus, the number of suspended convictions has the maximum impact on assessing the level of danger that criminals pose to society: the coefficients for this variable (2.63, 1.41, 0.49 for the high, moderate, and low

groups, respectively) are the most different for different groups. An increase in the number of suspended convictions increases the level of threat that the offender poses to others. The age of the convict is also a risk factor – criminals with criminal experience pose a greater danger. Resocialization has not yet fully fulfilled its main function – not all criminals become law-abiding citizens. An interesting result is obtained regarding early dismissals: this variable is inversely correlated with the “low” group. This means that parole does not contribute to reducing the level of threat that prisoners pose to others. The level of education has a greater impact when distributing prisoners into the “low” group. Therefore, education correlates with a lower level of danger that a convict poses to society. These results confirm the estimates obtained by other authors (Onyeneke & Karam, 2022; Ades & Mishra, 2021). Employment has a greater impact on the distribution of objects into the “low” group: individuals who have a permanent job pose less danger to others. Similar conclusions were drawn by other researchers (Zungu & Mtshengu, 2023). The motivation for dismissal does not significantly affect the distribution of prisoners into the identified groups, but it is more inherent in individuals who pose less threat to society. This issue has not been studied in the literature, so it requires additional attention and further detailed analysis.

The obtained discriminant model is a system of linear equations (linear combinations of independent variables) that will optimally distribute convicts (suspects) into the corresponding groups (high, moderate, low) according to the level of public danger they pose to society. With the help of these functions, new observations can be classified. They are assigned to those classes whose classification values are maximum.

Fig. 1 shows a scatterplot of canonical values. It visualizes the contribution of each of the discriminant functions to the distribution of criminals into groups according to the level of danger they pose to society.



**Figure 1.** Scatterplot of Canonical Values for Criminal Danger Level Groups.

Each of the 13,010 observations (prisoners) is represented by a point on the graph. The points represent the canonical scores, which are the values of the canonical variables derived from the original data. Points belonging to the same group (high, moderate, low) according to the level of public danger that criminals pose to society are marked with the same color and symbol. Points within the moderate and low groups are clustered compactly. For the high group, which is the smallest among the others, there is the highest dispersion of points, indicating the presence in this group of persons convicted of serious or particularly serious crimes, serving long sentences, and having no suspended sentences or early releases. The distances between the groups are large enough for acceptable discrimination of objects. Therefore, the canonical analysis performed is of high quality.

The constructed canonical discriminant model can be used to assess the level of danger posed by suspects (convicts/prisoners) for new datasets on criminals. The obtained knowledge can be used by the court in determining the measure and term of punishment, establishing the possibility of parole; by the probation service to choose the appropriate level of supervision and control over the released convict; by law

enforcement agencies to take appropriate measures to prevent crime and protect citizens. An objective assessment of the level of danger that a convict poses to society is an important element in ensuring the rule of law, and justice, maintaining a balance between the imposition of punitive sanctions commensurate with the degree of illegal behavior, and ensuring public safety, and increasing the efficiency of the judicial system as a whole.

## Conclusions

The traditional justice system typically focuses primarily on the very facts of the crime committed and the circumstances of its commission. However, a more comprehensive approach is needed for effective crime prevention and ensuring a proper balance between public safety, the realization of the principles of justice, and the successful reintegration of offenders into society after serving their sentences. It is necessary to rethink the system of punishments in such a way that it takes into account not only the circumstances of the illegal behavior but also the personal characteristics of the offender, their motivation, the possibility of correction, and, most importantly, the level of threat they pose to others.

The article examines the problem of automating the assessment of the level of danger posed by suspects (convicts/prisoners) to society. An empirical analysis was conducted based on data on 13,010 convicts serving sentences in Ukrainian penitentiary institutions. An analytical model was developed to assess the level of danger posed by criminals to society based on their socio-demographic characteristics and information about previous criminal activity. Significant factors influencing the distribution of criminals into groups (high, moderate, low) according to the level of danger they pose to society were identified: the age at which a person was first sentenced, early dismissals, suspended convictions, education level, type of employment, and the motivation for dismissal. An optimal canonical discriminant model was developed for classifying new cases into the identified groups.

The presented research was conducted within the framework of developing a unified analytical judicial system in Ukraine and is part of the digitalization of justice. The presented applied solution is not without limitations, as it does not take into account all factors that may be associated with the danger posed by a criminal to society. In particular, adverse family circumstances, mental state at the time of the crime, etc. We plan to study this issue in depth in future research. However, the obtained knowledge can be used by courts when imposing sentences, their measures and terms, as well as when considering issues of parole; by the probation service – to determine the appropriate level of supervision and control over former prisoners after release; by law enforcement agencies – to introduce appropriate measures to prevent crime and ensure the safety of citizens. This will ensure the consistency and impartiality of relevant processes in the justice system, improve public safety, and ensure the proper resocialization of offenders.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.19>

How to Cite:

Zhukova, T.A., Sorokina, E.V., Dronova, S. Yu., Sukhorukova, D.V., & Khalevina, S.N. (2024). Ethnic stereotypes: eliminating prejudice in intercultural communication. *Amazonia Investiga*, 13(77), 257-269. <https://doi.org/10.34069/AI/2024.77.05.19>

## Ethnic stereotypes: eliminating prejudice in intercultural communication

### ЭТНИЧЕСКИЕ СТЕРЕОТИПЫ: УСТРАНЕНИЕ ПРЕДРАССУДКОВ В МЕЖКУЛЬТУРНОЙ КОММУНИКАЦИИ

Received: March 4, 2024

Accepted: April 25, 2024

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#### Abstract

In the process of interaction between representatives of different cultures, ethnic stereotypes often become key factors affecting the effectiveness of intercultural communication. They can both facilitate mutual understanding through simplified perception and create barriers, leading to misunderstanding and conflicts. This article is devoted to the analysis of the theoretical foundations of ethnic stereotypes and the development of strategies aimed at overcoming them in the context of intercultural communication, which is crucial for establishing dialogue in a diverse world.

Previous research in the field of ethnic stereotypes primarily seeks to establish a theoretical framework, classify these prejudices, and examine

#### Аннотация

В процессе создания равноправного и уважительного общения между представителями различных культур устранение этнических стереотипов в межкультурной коммуникации играет ключевую роль. Стереотипы могут как способствовать взаимопониманию за счет упрощенного восприятия, так и привести к конфликтам, агрессии и даже дискриминации, поэтому необходимо как осознавать их, так и стремиться к их преодолению. Предлагаемая статья посвящена анализу теоретических основ этнических стереотипов и разработке стратегий, направленных на их преодоление в контексте межкультурной коммуникации,

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their impact on social and interpersonal relationships. Utilising multidisciplinary approaches, these works significantly enhance comprehension of this phenomenon, providing examples from diverse sectors of society. However, this study aims not only to systematise and summarise the existing theoretical foundation, but also to expand the analytical viewpoint to incorporate facets of strategy development and implementation targeted at mitigating the impact and dissemination of ethnic stereotypes. This study aims to identify effective measures for preventing and correcting stereotypical perceptions in intercultural communication, which inevitably arise in multi-ethnic societies. By doing so, it aims to contribute to the promotion of socio-cultural dialogue and mutual understanding.

**Keywords:** Intercultural communication, ethnic stereotypes, strategies for overcoming ethnic stereotypes, ethnic communities, effective communication.

имеющей важнейшее значение для налаживания диалога в многополярном мире. Предыдущие исследования в области этнических стереотипов, в первую очередь, направлены на создание теоретической базы, классификацию этих предрассудков и изучение их влияния на социальные и межличностные отношения. Используя междисциплинарные подходы, подобные работы значительно углубляют понимание данного явления, демонстрируя примеры из различных социальных страт. Важно подчеркнуть, что данное исследование направлено не только на систематизацию и обобщение существующей теоретической основы, но и на расширение аналитического кругозора с целью включения аспектов разработки и реализации стратегий, направленных на смягчение воздействия и распространения этнических стереотипов. Данное исследование призвано выявить эффективные меры по предотвращению и коррекции стереотипных представлений в межкультурной коммуникации, которые неизбежно возникают в полиэтнических обществах. Тем самым оно призвано внести вклад в развитие социокультурного диалога и взаимопомощи.

**Ключевые слова:** Межкультурная коммуникация, этнические стереотипы, стратегии преодоления этнических стереотипов, этнические сообщества, эффективная коммуникация.

## Introduction

Ethnic stereotypes in intercultural communication are a phenomenon that can hinder understanding and harmony between different cultural groups. These simplistic prejudices and erroneous generalizations can have a negative impact on intercultural interactions, perpetuating discrimination, and disrespect towards certain ethnic communities. In this article, we will explore the concept of intercultural communication and outlines the barriers it faces, such as linguistic and cultural differences. It aims to establish a comprehensive theoretical groundwork for the discourse around ethnic stereotypes, illustrating how they form, persist, and complicate intercultural dialogue.

Discussion transitions to proposing practical suggestions and strategies for overcoming ethnic stereotypes within intercultural interactions. A dedicated case study offers empirical data and real-world insights, serving as a critical reflective tool for understanding the multi-faceted nature of stereotypes and their rootedness in intercultural communication.

The main findings of this study indicate a pronounced gap between the theoretical understanding of ethnic stereotypes and the efficiency of strategies deployed to mitigate their effects.

In line with the main aim, this paper has the following *objectives*: to research and analyse the phenomenon of intercultural communication; to study the barriers arising on the way of intercultural communication, as well as classification of ethnic stereotypes on the basis of different grounds; to investigate and propose the strategies and methods of combating ethnic stereotyping in intercultural communication based on the analysis of specific case studies.

## Methods

The paper's content will rely on various research *methods*. Firstly, the *analytical method* will be utilised, involving the analysis of existing research articles, books, journals and other sources to gain a lucid understanding of the research topic, as well as acquire knowledge of the primary theoretical approaches and concepts related to the subject.

Additionally, a *classification method* will be implemented to systematically organise and structure diverse variations of ethnic stereotypes, providing insight into their nature, origins, and mechanisms of operation. The practical component of the coursework primarily employs the *case study method*, which facilitates analysis of real-life examples of interethnic conflict and issues in intercultural communication. This method effectively illustrates the influence of ethnic stereotypes across various domains and suggests practical recommendations for mitigating such biases, supported by detailed explanations of the proposed strategies.

## Literature Review

### *The Concept of Intercultural Communication*

The essence of the present paper is most thoroughly revealed by a detailed description of its object and subject of research. To fully comprehend the concept of ethnic stereotypes, it is vital to commence with intercultural communication and highlight its essential features.

The inception of intercultural communication (ICC) as an academic field is acknowledged to be in 1959, following the release of Edward T. Hall book "The Silent Language" (Hall, 1959). In the publication, the author introduced the term "intercultural communication" for widespread adoption. He stated that "culture is communication and communication is culture". Edward T. Hall emphasized the importance of studying this field as a scientific discipline, which led to the development of new methodologies. He focused on the issues that arise during cross-cultural interactions and developed key concepts to provide interpretation and explanation. Edward T. Hall's work exhibits a perceptive comprehension of non-verbal communication and its function in cross-cultural exchanges, along with the impact of cultural elements on human conduct. He stresses the significance of culture's 'unseen' facets, including regulations for time and covert norms governing social and vocational affiliations. In the book's introduction, E. T. Hall wrote that "Difficulties in intercultural communication are seldom seen for what they are. When it becomes apparent to peoples of different countries that they are not understanding one another, each tends to blame it on 'those foreigners,' on their stupidity, deceit, or craziness". Hall also urged his audience to gain knowledge about themselves "through seriously considering the customs of others" and recognized intercultural communication as an ideal objective that each individual should pursue, with the intention of adapting effectively and optimally within a real world (Grushevickaya, 2002). His theories and models provided a foundation for subsequent research and educational initiatives worldwide, enhancing comprehension and reverence for cultural diversity. Hall paid close attention to the difficulties arising from non-verbal communication and cross-cultural differences that could result in misunderstanding and conflict. He cautioned that such misunderstandings often lead to the manifestation of negative stereotypes and prejudices towards other cultures. Thus, Hall advocated for the importance of being aware of and avoiding biased judgement towards other cultures, while also acquiring, honing, and utilising the skills required to effectively engage with individuals from diverse cultural backgrounds.

Edward T. Hall's research and extensive publications were instrumental in establishing a fundamental understanding of the concept of intercultural communication and emphasising the significance of studying the issues that arise in this area in all their diversity. Furthermore, his contributions inspired many subsequent studies on this topic. Additionally, several Russian scholars have also published their works on intercultural communication and related subjects. Russian scholars have significantly contributed to the study of multicultural interactions and are well known for their theoretical framework related to this field. Various definitions have been proposed to elucidate the term 'intercultural communication'.

According to Alexander P. Sadokhin (2004), intercultural communication is a complex and multifaceted process that involves individual interactions, attitudes towards each other, mutual influence, empathy and understanding. In general, it represents one of the most crucial factors of human activity. The practical significance of communication attracts attention from specialists across various fields of humanities such

as philosophy, psychology, sociology, cultural studies, ethnology, and linguistics. Each scientific discipline or direction studying particular communication aspects, however, identifies its own subject of study within this process. The study of various cultures and intercultural communication is increasingly important in contemporary times. There is an escalating interest in cultural studies, with a focus on cultural conflicts and dialogues. This has led to the allocation of cultural studies as a distinct academic discipline with dedicated academic councils for the safeguarding of scientific research. Based on A.P. Sadokhin's words, it can be inferred that intercultural communication is a phenomenon that possesses distinct characteristics and encompasses a range of communication levels, spanning from superficial to deep, and from interpersonal to interethnic and international. Therefore, a comprehensive interpretation of this phenomenon, underpinned by various disciplines and spheres of life, demands careful attention.

According to S. Ter-Minasova (2008), intercultural communication is “a vigorously developing and demanded by society theoretical and applied scientific direction, located at the intersection of linguistics, cultural studies, communicative and linguodidactics”. The swift development of worldwide relations, cooperation between nations in resolving global issues, and the rise in migration levels are the primary drivers of the current enthusiasm in this field. This inevitably culminates in an increased number of cultural interactions as the world is currently searching for answers to various global issues and conflicts. Despite the extensive research in this area, fresh barriers to intercultural communication persistently emerge. The definition of intercultural communication, according to S. Ter-Minasova, underscores the multidisciplinary and dynamic features of this field of study, along with its relevance and importance to modern society. The rationale highlights the significance of interdisciplinary approaches, theoretical and practical considerations, public demand, and the requisite level of education for intercultural interactions. S. Ter-Minasova's definition highlights that intercultural communication is a crucial and thorough academic discipline that offers theoretical frameworks and practical techniques to facilitate intercultural interaction and dialogue.

As N. Martynova (2007) points out, in the process of intercultural communication “each person simultaneously solves two crucial problems – to strive to preserve their cultural identity and to integrate into another's culture”. The combination of potential solutions to these problems defines four main forms of intercultural communication: direct, indirect, mediated, and immediate. Direct communication involves the sender directly addressing the receiver, either orally or in writing. Indirect communication is predominantly one-way, whereby information comes from sources such as literature, art, messages, radio, television programmes, and publications in newspapers and magazines. Direct and indirect modes of communication are differentiated by the presence or absence of an intermediate medium acting as an intermediary between the communicators. Mediated forms of intercultural communication refer to interactions that take place through various forms of media, such as social media, email, video calls, or written correspondence. These interactions are often asynchronous, meaning that there is a delay between the message being sent and received. In mediated communication, individuals may not have the benefit of immediate feedback or non-verbal cues, which can sometimes lead to misunderstandings or misinterpretations of the message. On the other hand, immediate forms of intercultural communication involve face-to-face interactions where individuals can communicate in real-time and observe each other's non-verbal cues, such as facial expressions, body language, and tone of voice. Immediate communication allows for more direct and personal interactions, which can help build rapport and understanding between individuals from different cultural backgrounds.

Thus, according to the classifications of intercultural communication delineated by N. Martynova, it is evident that interactions amongst representatives of distinct cultures can manifest in varied forms, necessitating a comprehensive analysis of the implementation, progression, and obstacles that may surface. To accomplish this, all conceivable factors influencing the development of a specific type of intercultural communication must be considered. In general, being able to distinguish between different types of intercultural communication and understanding the tasks involved can equip researchers and individuals with the necessary skills to adapt, communicate effectively and successfully interact in a multicultural setting. This knowledge forms the basis for a thorough examination and comprehension of intercultural interactions, essential for devising effective communication strategies and surmounting impediments towards successful integration and mutual understanding.

In the field of intercultural communication and interactions, it is worth noting that both daily and business communication are subject to their nuances and subtleties. Two decades ago foreign investment increased sharply (Mockaitis, 2009) due to organisations expanding into different parts of the world, searching for

new markets, and outsourcing numerous operations. One of the primary challenges faced by organisations during their expansion and still encountered today is how to communicate with their staff as efficiently as possible (Leonard, Van Scotter & Pakdil, 2009). Employees often come from diverse cultural backgrounds, making communication a daunting task. While the advancement of communication technology has presented numerous opportunities to facilitate communication and has mitigated the impact of communication barriers, including distance and time (Watson-Manheim & Belanger, 2007), cultural and social discrepancies continue to present communication challenges and make it puzzling and complicated (Adams, 1997). It is reasonable to surmise that the societal context in which an organisation operates will have an impact on its functioning (Harris & Moran, 1991). The rapid pace of globalisation necessitates that organisational managers and business researchers possess a complete understanding of the various communication methods deployed within a multinational corporation and their implications due to cultural diversity. Additionally, they must have the capability to identify the recipient's reactions. In an intercultural context, it is imperative to acknowledge that diverse cultures have distinct communication practices that can vary in their apprehension of time, space, non-verbal cues, and communication styles. These cultural disparities can influence how information is conveyed, apprehended, and interpreted between people from different cultures. Managers of organizations must acknowledge that cultural diversity within a company can provide a competitive advantage. The unique perspectives, shared expertise, and varied experiences of leaders and employees from diverse cultures can enhance innovation and creativity within an organisation. Nevertheless, to capitalise on these opportunities, managers need to be equipped to operate in a multicultural environment and cultivate intercultural leadership abilities. The specific barriers arising in the process of intercultural communication and their certain manifestations will be described in a more detail further.

### ***Barriers to Intercultural Communication and the Phenomenon of Ethnic Stereotypes***

In today's world, with a growing fascination for languages and cultures of different peoples, communication holds a vital role in human social life. Since effective communication requires a shared understanding between communicants, any lack of commonality can lead to misunderstandings. Such lack of commonality can arise from differences in national culture between communicators. According to Sudhanshu Jayaswal (2009), "communication does not always result in an understanding because it is a symbolic behaviour. People from different cultures encode and decode messages differently, increasing the chances of misunderstanding".

Barna (1997) has developed a list of six barriers to intercultural communication. These are *anxiety, assuming similarity in-lieu of difference, ethnocentrism, stereotypes and prejudice, non-verbal misinterpretations, and language*. All the aforementioned barriers are likely to cause misunderstandings and hinder genuine openness and acceptance of other cultures, resulting in a lack of effective intercultural communication. It is essential to acknowledge these obstacles to actively overcome them and foster successful communication between different cultures. To offer a more thorough comprehension of methods of dealing with these challenges, this study focuses on a predominant and impactful obstacle – ethnic stereotypes.

Ethnic stereotypes are regarded as the most dangerous, ambiguous and prejudicial among other known types of stereotypes, and their main problem facing the scientific community nowadays has not been solved yet. As an extension of ethnocentrism, stereotypes are one of the obvious barriers to intercultural communication. To gain a comprehensive understanding of the concept of stereotype, it is crucial to examine the various definitions proposed by scholars within the context of studying the relationships among diverse human beings, cultures, and ethnicities.

According to the definition of stereotype by Walter in 'Public Opinion' Lippmann (1922), who introduced the concept into scholarly usage in the early 20<sup>th</sup> century, a stereotype is "a distorted picture or image in a person's mind, not based on personal experience, but derived culturally". Lippmann postulated that the formation and survival of stereotypes is due to economic, political, and social reasons. With their transmission from one generation to the next, stereotypes gain momentum and become more resolute and compelling. Thus, the aforementioned reasons for the existence of stereotypes serve as the foundation for the development of stereotypical attitudes and prejudices amongst individuals from specific cultures, or in groups, towards individuals from other nations and cultures, known as outgroups. During economic or

political conflicts, state governments often utilise stereotypes to define the 'enemy side', generating prejudice and stimulating the formation and influence of in-group stereotypes about the outgroup.

It is worth noting that W. Lippmann identifies two additional ways in which stereotypes are used – psychological and epistemological. Firstly, the creation of an opposite image of a culture is a psychological process wherein individuals within a group project or transfer undesirable qualities they notice in their own society onto other ethnic groups. Members of a group who are prejudiced or discriminate against a certain characteristic may contribute to the creation of a stereotype about another group to diminish or negate their own unfavourable traits. Secondly, psychological construction also has an epistemological payoff. It involves forming a picture of an ethnic group and attributing certain traits to its members, which enables the in-group member to gain 'knowledge' about the outgroup. This knowledge is informed by prejudices and stereotypes, leading to a simplified, predictable, and familiar view of other ethnic groups. Using stereotypes to reduce individuals from a certain ethnic group to a set of characteristics may aid in avoiding uncertainties associated with intercultural interactions.

Since W. Lippmann's conception of ethnic stereotypes gained popularity, scholars have pondered the means to identify and, more crucially, control them. One of the most widespread and well-known definitions of ethnic stereotype is provided in the *Ethnopsychological Dictionary* by V. G. Krysko (1999). According to this definition, ethnic stereotype is a schematised image of a representative of an ethnic community, usually representing a simplified, sometimes one-sided, or inaccurate (distorted) knowledge of psychological features and behaviour of people of another ethnicity. It should be noted that despite the sufficient completeness and accessibility of the above definition, the issue of stereotype is quite complex, as the phenomenon of "stereotype" itself can be considered (and is considered) from different points of view. This definition gives only a general idea of the nature and essence of ethnic stereotypes.

The classification of ethnic stereotypes based on their representation is a vast realm. Ethnic stereotypes stem from diverse reasons, however, three specific types of stereotypes are the most prevalent, and they have a harmful impact on intercultural communication. Foremost among these are ethnic *stereotypes founded on an individual's physical traits*. Appearance plays a significant role in evaluating individuals and is often considered an independent component offering a range of criteria that contain certain stereotypes. In his research, Z. Dökmen (2012) argues that the initial impression of an individual relies heavily on their appearance. The researcher highlights that an individual's physical and behavioural traits encompass stereotypes about them and affect their application. In fact, when engaging in intercultural interactions, an individual's perception of a member of a different ethnic group is mainly based on superficial characteristics. Stereotyping people based on external characteristics should be a serious concern, as appearance plays a significant role in shaping first impressions. Stereotypes regarding appearance can impact how individuals evaluate one another from the outset of an interaction. In cases where stereotypes dictate particular behaviour based on outward traits, this may result in distorted perceptions and constrain opportunities for more profound comprehension and interaction. Prejudices or biases based on appearance can hinder the formation of an open, unbiased attitude and distort the interlocutor's perception. Stereotyping people based on their appearance can lead to misinterpretations and erroneous conclusions regarding their personality, abilities, or character. Ethnic stereotypes relating to appearance can also create language and cultural barriers in communication. If individuals presume that someone does not speak their language or share their cultural values based on their appearance, they are less inclined to engage and exchange information. Acknowledging and understanding the effects of ethnic stereotypes based on appearance is a crucial component in improving intercultural communication.

The second most frequent form of *ethnic stereotypes pertains to individuals' intelligence and abilities*, which are based on their membership in a particular ethnic group. Yao has analysed ethnic and gender stereotypes of Chinese and Russians on their intelligence in his article (2022). The result of the aforementioned study demonstrates that individuals from a particular culture assess the competency and intelligence of individuals from a contrasting culture according to their affiliation with a specific ethnic group. Ethnic stereotypes about intelligence and competence have a profound impact on intercultural interaction at many levels. If there is a stereotype that a particular ethnic group is less competent or less intellectually capable, this can lead to mistrust or underestimation of their words and actions. This bias leads to unequal opportunities to communicate and negatively affects relationships and cooperation. Finally, individuals who feel the burden of negative stereotypes may experience stress and damage to their self-esteem, which can lead to 'stereotype threat' – the fear of confirming a negative stereotype about their group. This feeling can interfere with the ability to function effectively in intercultural communication.

One more type of ethnic stereotypes is *character stereotypes*, which involve attributing specific character traits to members of ethnic groups, such as honesty, aggressiveness, friendliness, or trustworthiness. Psychology academics from the University of Colorado, Irene Blair, and Charles Judd, conducted a study (2004), which revealed that people evaluate individuals from different ethnic groups based on their behaviour and character traits. Participants commonly made stereotypical judgements concerning other people's Afrocentric facial features and ethnicity, to such an extent, that even direct requests to abstain from making prejudiced statements failed to prevent them. African Americans are frequently stereotyped as violent and aggressive, which can have widespread ramifications for intercultural communication. This results in numerous conflicts, protests, and overall discontent around the globe. Ethnic stereotypes regarding behaviour and character can significantly impede intercultural communication and interaction. The assumption that certain ethnic groups possess traits such as aggression, laziness, friendliness, or loyalty is often founded on stereotypes and biases. Stereotypes perpetuate suspicion and tension between cultures, causing caution and avoidance of interactions, thereby exacerbating the lack of trust, and understanding. Belief in stereotypes about the aggressiveness of individuals from certain cultures can cause defensiveness and limit dialogue, resulting in misunderstandings and an unproductive communication environment. Finally, stereotyping may also give way to discriminatory conduct that isolates or excludes members of minority groups from social and professional interactions.

## Results and discussion

### *Strategies for Overcoming Ethnic Stereotypes in the Context of Intercultural Communication*

The preceding part examines common forms of ethnic stereotypes, concentrating on how they emerge in the context of intercultural communication. Purposeful research has shown that positive and negative ethnic stereotypes exist and can be used to depict one's own ethnicity or forced onto other groups. Stereotypes are often based on external traits, intellectual abilities, and negative character traits assigned to certain ethnic groups. The function of these ethnic stereotypes is most apparent in various areas of intercultural interaction, such as educational institutions, workplaces, and the justice system. The function of these ethnic stereotypes is most apparent in various areas of intercultural interaction, such as educational institutions, workplaces, and the justice system. It is crucial to pay close attention to these spheres. At the academic level, ethnic stereotyping has the potential to impact both pupils' academic and social outcomes and the work environment, affecting both students and teachers alike. In the workplace, the ethnic composition of the workforce can influence hiring processes, promotions, and the relationships between co-workers. Within the justice system, stereotypes may affect the attitudes of police, judges, and juries towards suspects and defendants, often leading to a sense of uncertainty about justice and a lack of trust in the legal system. In line with the above, several strategies for overcoming ethnic stereotypes can be suggested.

In the specific context of intercultural communication, combating ethnic stereotypes in educational institutions requires innovative approaches. ***As the first proposed strategy, educational institutions must actively consider and widely implement intercultural education in their curricula.*** It is important to develop and implement educational modules and courses that are dedicated to intercultural communication and awareness of stereotypical thinking. For instance, possible subjects to study could encompass the examination of the cultural syndromes identified by Hofstede and G. Triandis, exploring the cultural dimensions developed by Edward Hall, studying the historical and social contexts of different cultures, demonstrating basic communication principles when interacting with diverse ethnic groups, and cultivating critical thinking skills when cross-culturally interacting. The paramount goal of such an educational programme should be to foster tolerance and comprehension among the younger generations. The benefit of intercultural education lies in children's acquisition of empathic skills and the ability to communicate effectively with members of different cultures, without conflict. Younger generations must be taught to think freely and without stereotypes, recognizing other ethnic groups as equals. It is worth noting that intercultural education ought not be confined solely to academic subjects. No less important is the creation of intercultural educational environments where the experience of different cultures is actively embodied. Events such as festivals, master classes, exchanges of experiences with representatives of different ethnic groups also help to build tolerance and understanding among students. Large-scale strategies aimed at intercultural education within educational institutions aim to cultivate a tolerant and open-minded young generation that is liberated from stereotypes and can think freely. This objective is achievable by implementing relevant subjects and fostering intercultural learning environments that broaden students' horizons, facilitating the development of exceptional intercultural competencies.

***The second strategy that should be used to overcome ethnic stereotypes is the continuous development of the intercultural competence of the teaching staff in educational institutions.*** In doing so, administrators and heads of schools, universities, and other education institutions should facilitate ongoing training for educators in intercultural communication that is tailored to meet the needs of an increasingly diverse student body comprising various nationalities and cultures. This strategy comprises seminars and training programmes aimed at equipping educators with the skills and knowledge necessary to communicate effectively with students from diverse cultures, while combatting ethnic stereotypes in academic settings. An essential component of this strategy is to empower educators with the ability to recognise and preemptively address instances of stereotyping amongst students to mitigate potential conflicts arising from ethnic disparities. Educators require the expertise to express respect for diverse cultures and employ behaviour models that are appropriate when interacting with individuals from various ethnic groups. Therefore, investing in the ongoing professional development of teaching staff is crucial in confronting preconceptions and establishing intercultural understanding in educational contexts. It also fosters the growth of empathy skills and a more profound recognition and worth of cultural diversity.

The following strategies address ethnic stereotyping in the workplace in multicultural organisations. It is crucial to combat stereotypes and prejudices in work teams as they erode the bedrock of corporate ethics, generating an atmosphere of conflict and mistrust. ***The third strategy pertains to a profound comprehension of cultural codes, which enables one to effectively surmount barriers linked to ethnic stereotypes.*** The approach entails identifying and engaging employees from various ethnic groups who possess sufficient global skills to serve as mentors. Their duties involve arranging cultural and educational events, organizing discussion platforms, and introducing programs to facilitate employee integration. The central objective is to establish consistent seminars and workshops that focus on understanding cultural nuances, business customs, and linguistic subtleties. The above approach has the potential to cultivate continual intercultural dialogues and mutual respect between representatives of various cultures encountered in the workplace. Its perceived benefits are evident in the reduction of ethnic stereotypes, the expansion of employees' cultural awareness and the enhanced global competitiveness of the organisation through the reinforcement of corporate culture and social cohesion.

***The fourth strategy, based on research in intercultural education and psychology, involves the creation of a staff-training model that promotes the development of intercultural empathy and the elimination of prejudice through the educational process.*** The techniques of this strategy are rooted in the notion of socially constructed reality, which asserts the significance of collaborative educational initiatives, among other factors, for challenging ethnic stereotypes and unfair viewpoints. The primary focus of the described strategy is to introduce cross-cultural workgroups that can collaborate on projects, generating joint solutions to problems that employees from diverse ethnic backgrounds encounter. The association entails introducing specialised training on cultural adaptation. Mixing teams to collaborate on projects and organising joint educational sessions would create an environment where diverse cultural practices can organically collide and synthesize. In turn, this fosters an environment where employees trust each other and improves the cohesion of the work team. Furthermore, this expands the innovative potential of the organisation and contributes to the development of stable cross-cultural interaction skills among employees. Game-based learning and the case method could be included in the educational sessions to achieve these objectives.

The proposed strategies advocate for the implementation of a methodical, unbiased analysis system. The use of case studies can be integrated across disciplines to counter stereotypes based on ethnicity. Through detailing the processes of stereotype formation, dissemination, and reinforcement within societies, this approach has the potential to effectively eliminate stereotyping. In turn, this helps raise awareness of the resulting manifestations of prejudice and discrimination, contributing towards combating these issues.

### ***Case Study of Ethnic Stereotyping***

Case studies that feature personal experiences and narratives of individuals offer a more contextualised and meaningful approach to discussing stereotyping. This enhances one's comprehension of the implications of stereotypes on both the broader social context and individuals themselves. Case studies are beneficial for pedagogical strategies as they provide a learning opportunity through practical examples. They are especially relevant for educational programme organisation and for developing measures to combat ethnic stereotypes in various spheres of activity. This strategy also involves encouraging critical reflection and in-depth analysis of the problem of ethnic stereotyping. The following section of this chapter will provide a

more detailed exposition of the case study methodology, as well as correlate and analyse it through the lens of the strategies discussed in the preceding context of this study.

Each case study is situated within a distinct context: educational establishments, corporate settings, and law enforcement agencies, providing a wide-ranging perspective on the challenges posed by, and the potential methods for mitigating, ethnic prejudice. Case Study №1 evaluates the impact of ethnic stereotypes within the sphere of education, detailing how such biases affect students' experiences, particularly those from foreign backgrounds, and outlines a series of approaches for crafting a more inclusive academic environment. Case Study №2 moves to analyse the repercussions of ethnic stereotypes in a corporate environment, using "Global Tech" as an exemplar. It sets forth a systematic plan aimed at creating an inclusive culture that values and leverages employee diversity. Case Study №3 considers the issue of ethnic biases within the judiciary and law enforcement sector of City N. It emphasises the imperative for objectivity and justice, presenting strategies for achieving systemic and equitable changes that ensure equal treatment under the law. Throughout the exploration of these cases, theoretical foundations are explored, intervention strategies are assessed for their efficacy, and comprehensive action plans are proposed. The aim is to deconstruct ethnic stereotypes, enhance intercultural understanding, and cultivate inclusive environments within key sectors of society.

#### *Case Study №1. Ethnic Stereotypes in Educational Institutions*

*Generalised Problem Statement.* In the context of globalisation and an increase in the number of students representing various ethnic groups, modern educational institutions are increasingly confronted with the issue of ethnic stereotypes. Observations indicate that presently children studying outside of their home country are increasingly becoming the targets of prejudice due to distinctive external features, as well as harassment due to stereotypes directed at their intellectual abilities and character traits that are often attributed to members of a certain ethnic group. The pertinent question arises: how to address the problem of stereotyping among pupils in various educational institutions and to minimise the emergence of ethnic stereotypes on these grounds?

*Key Task.* Propose possible ways of preventing conflict situations in educational institutions and measures to reduce the harassment of students and teachers based on ethnic differences.

*Context for Problem Resolution.* School X reflects the ethnic diversity of contemporary society; however, there are observed instances of stereotyping students and teachers, based on appearance, and assumed ethnic characteristics. Many children are subjected to bullying because they look different from their classmates and receive numerous negative preconceptions about their intellectual abilities. Furthermore, an increased number of stereotypes directed at certain students leads to the formation of false auto-stereotypes about their own ethnic group among these children. This continuously leads to inequality in the educational process and interaction among participants within the educational environment.

#### *Tasks Potentially Leading to a Solution:*

1. Determine which theoretical knowledge will assist you in addressing the problem.
2. Collect information on how similar problems are addressed by educators and departments of education in different countries.
3. Contemplate possible long-term strategies at each stage of the educational and pedagogical process that will contribute to the deterrence of ethnic stereotypes in the educational environment.
4. Anticipate the likely reaction of students and teachers to the innovations. Devise how to explain to both parties the importance of these strategies for improving the psychological climate in the classroom and in the educational institution as a whole.
5. Prepare the final version of the problem resolution in the form of a project and get ready to defend the proposed strategies.

The first case, centered on the educational landscape, demonstrates a critical need for strategies that address ethnic stereotypes within schools. To establish a link between the multicultural education for students and intercultural training for educators, a coordinated and comprehensive approach is necessary. Thus, the first and second strategies cited in the previous paragraph will be the most relevant.

In introducing multicultural education for students, the curriculum would be broadened to include lessons that highlight the diversity of cultures, histories, and contributions of various ethnic groups globally. This ensures that all students are represented in the content they learn, promoting inclusivity and understanding from an early age.

Concurrently, intercultural training for educators is pivotal in facilitating this educational shift. Educators would undergo professional development designed to heighten their cultural awareness and sensitivity. The training would equip teachers with the knowledge and skills to deliver an inclusive curriculum effectively and handle intercultural interactions within the classroom prudently.

Both strategies are intrinsically linked: the implementation of multicultural education relies on teachers who are adequately prepared to present such content and navigate a classroom environment that reflects a wider range of cultural perspectives. Educators trained in intercultural competence are better positioned to identify and address biases and stereotypes, creating a safer and more respectful environment for learning. Through this tandem approach, intercultural education for students and training for educators become mutually reinforcing, together dismantling ethnic stereotypes, and creating a learning environment where diversity is recognized as an asset rather than a source of division. This strategic pairing actively promotes a more harmonious understanding, and fair school culture in which students from all ethnic backgrounds can thrive.

#### *Case Study №2: Ethnic Stereotypes in a Multicultural Organisation*

*Generalized Problem Statement.* Amidst a globalised economy and the internationalisation of corporate staff compositions, multicultural corporations are faced with the challenge of managing ethnic stereotypes among employees. It has been identified that some employees, owing to their distinctive external features and assumptions about their ethnic origins, are subjected to unwarranted criticism, social isolation, or underestimation of their professional qualities. This leads to teamwork problems, reduced motivation, and diminished productivity. It has become a priority to find effective methods to overcome ethnic stereotypes within the corporate environment, ensuring equal opportunities and enhancing mutual understanding within the team.

*Key Task.* Develop a set of measures aimed at reducing ethnic prejudices and stereotyping in a multicultural organisation with the intention of establishing an inclusive and productive work environment.

*Context for Problem Resolution.* "Global Tech", a corporation involved in the development of high-tech solutions in the IT sector, recruits employees from diverse parts of the world. Nevertheless, the company has exhibited signs of ethnic stereotyping which influence career progression, communication, and overall work morale.

#### *Tasks Potentially Leading to a Solution:*

1. Research existing methods of combating ethnic stereotypes and identify the most effective for "GlobalTech's" corporate culture.
2. Analyse the practices of international companies in developing diversity and inclusion programmes.
3. Develop strategic approaches to cultural competence training that could be implemented at all management levels and within teams.
4. Evaluate the expected changes from implementing the programmes and potential complexities in their integration. Prepare methods for integrating these programmes into "GlobalTech's" corporate structure.
5. Create a comprehensive action plan for the realisation of training and cultural initiatives aimed at strengthening corporate ethics and fostering respect among employees of various nationalities.

In the second case dealing with the multivariate dynamics of a corporate environment, the emphasis lies on the need for cultivating an interculturally competent workforce through the deliberate application of two interwoven strategies. Firstly, the introduction of intercultural training programmes executed through collaborative projects in multicultural teams serves as a catalyst for experiential learning and cross-cultural understanding. Secondly, the institution of mentoring systems ensures continuous guidance and prejudice monitoring, thereby fostering an increased level of intercultural empathy among employees.

The intercultural training programmes are envisaged to immerse employees within project-based scenarios that reflect real-world team diversity. The objective is to facilitate direct interaction and cooperative problem-solving among team members from varied ethnic backgrounds. Such an environment is predicted to naturally lead to the breaking down of cultural barriers, while also enhancing skill sets pertinent to multicultural teamwork, communication, and conflict resolution.

Simultaneously, the strategic induction of mentors with advanced expertise in intercultural dynamics will act as observers and advisors within the organisational fabric. These mentors will be tasked not only with recognising and addressing occurrences of bias but also with nurturing a culture of intercultural empathy. Their role includes providing support and feedback to teams and individuals, ensuring that the principles of inclusion are integrated into the daily operations and interpersonal interactions within the organisation.

Both strategies should be synchronised for maximal impact. The active project-based training provides employees with the practical skills and shared experiences required to function effectively in a diverse environment. In contrast, the mentorship programme works as an overarching mechanism to consolidate learning outcomes, reinforce positive behaviour, and sustain an organisational culture that values and authentically engages with diversity. Effectively, this dual-strategy approach aims to embed intercultural competence into the corporate ethos of the organisation. By doing so, it alters the structural and interpersonal dynamics of the workplace, promoting a more inclusive and empathetic organisational climate conducive to diversity and innovation.

### *Case Study №3: Ethnic Stereotypes in the Judiciary and Law Enforcement Agencies*

*Generalised Problem Statement.* The issue of ethnic stereotypes within law enforcement and the judiciary is deeply rooted and leads to unjust appraisals and actions taken by officials towards citizens of various ethnic backgrounds. Such a predisposition to act upon ethnic stereotypes contravenes the principle of equality before the law and can lead to inequality and social injustice. The realm of justice must operate impartially and equitably, necessitating the development and implementation of effective approaches to minimise the impact of ethnic stereotypes on the decisions and actions undertaken by judicial and law enforcement bodies.

*Key Task.* To identify and develop mechanisms and strategies aimed at preventing ethnic stereotyping and discrimination within law-and-order agencies and the judicial system.

*Context of Problem Resolution.* The ethnic diversity within the population of City N has led to increased tension between the public and law enforcement agencies. Statistics reveal a disparity in the treatment of different ethnic groups during investigations, arrests, and in the course of justice. In certain instances, improper conduct has been based on assumptions of intellectual and moral attributes ascribed to specific ethnic groups.

#### *Tasks That Could Lead to a Resolution:*

1. Analyse the theoretical framework surrounding prejudice and intercultural communication to enrich the understanding of the issues at hand.
2. Explore best practices and initiatives to reduce ethnic stereotypes within law enforcement agencies in various countries.
3. Develop educational programmes and procedures for judicial employees, including police officers and judges, aimed at identifying and preventing ethnic bias.
4. Assess potential reactions from the law enforcement community and formulate communication strategies that highlight the importance of these changes for justice and operational efficiency.
5. Prepare a detailed plan for the implementation of the recommended measures and strategies, focusing on systemic and sustainable changes in the sphere of justice.

In addressing the third case concerning the impact of ethnic stereotypes on the judiciary and law enforcement, a dual-strategy approach is proposed to mitigate biases and promote impartiality in decision-making processes. The first strategy involves training law enforcement personnel using cases drawn from real-life situations, providing practical, scenario-based learning. The second strategy calls for the implementation of advanced artificial intelligence (AI) software designed to scrutinise judicial decisions,

identifying judgments influenced by ethnicity, including perceived character traits, intellect, and appearance, to prevent discrimination and recommend more balanced outcomes.

Training law enforcement officers through real-life scenario analysis equips them with the necessary tools to recognise and confront their own prejudices in controlled environments. This educative approach hinges on interactive participation, critical reflection, and engagement with complex social situations where ethnic stereotyping could influence outcomes. Such training has profound potential for behavioural transformation by directly challenging ingrained biases and encouraging the development of new, unbiased modes of thinking and acting within the law enforcement community.

Complementarily, the utilisation of AI-driven software provides an objective framework for analysing the judgments of judges and identifying potential biases in legal decisions. The role of this advanced technology is not merely to critique human judgments but to offer data-driven insights that can assist in nurturing fair and equitable justice delivery systems. By harnessing the analytical capacities of AI, it is possible to detect nuanced patterns of bias that may go unnoticed by humans and suggest alternative courses of action that negate the influence of ethnic stereotyping.

Together, these strategies offer a robust response to the issues identified within the judiciary and law enforcement sectors. Real-life scenario training promotes proactive learning and self-awareness among law enforcement personnel, fostering an environment where the principles of equality and fairness are prioritised. In tandem, AI software serves as a vigilant check against discriminatory practices, providing a high-tech tool for supporting the objective application of the law. In essence, this intersection of human development and technological innovation can potentially steer the justice system towards a more objectively equitable paradigm, where decisions are rendered with respect to individuals' rights and dignity, uninfluenced by ethnic stereotypes.

## Conclusion

A thorough comprehension of how ethnic stereotypes operate and how to combat them requires an exhaustive examination of the relevant theoretical framework and the implementation of extensive, detailed tactics targeting prejudice in various spheres of life. For this study, cases were chosen to depict the most significant issues linked to ethnic awakenings. Accordingly, the theoretical framework of work on ethnic stereotyping in the intercultural communication sector was employed to comprehend the situations portrayed in these cases. The research reflects the essence of intercultural communication and ethnic stereotypes, highlighting their role in contemporary society. It classifies the most significant aspects of these phenomena, providing a complete overview of the topic. The effective strategies to combat ethnic stereotypes, with real-life cases exemplifying their success were provided. The definitions and theoretical framework outlined in the initial chapter provided ample material to create four strategies for overcoming ethnic stereotypes. Additionally, three case studies were formulated to help identify stereotyping in various realms of intercultural communication and provide practical solutions to this issue.

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DOI: <https://doi.org/10.34069/AI/2024.77.05.20>

How to Cite:

Lankevych, A., Zaverukha, O., Sopilnyk, R., Havrylenko, O., & Podilchak, O. (2024). The ICC jurisdiction in Ukraine: challenges and opportunities in the fight against impunity. *Amazonia Investiga*, 13(77), 270-279. <https://doi.org/10.34069/AI/2024.77.05.20>

## The ICC jurisdiction in Ukraine: challenges and opportunities in the fight against impunity

### Юрисдикція МКС в Україні: виклики та можливості у боротьбі з безкарністю

Received: April 20, 2024

Accepted: May 28, 2024

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#### Abstract

This article examines the legal relationship between the International Criminal Court (ICC) and Ukraine, a non-party to the Rome Statute, focusing on the scope of the Court's jurisdiction to consider Ukraine's referrals regarding serious crimes committed on its territory since 2014. Discussions regarding the extension of the ICC's jurisdiction over Ukraine commenced in 2014-2015 following Ukraine's two requests for recognition of the ICC's ad hoc jurisdiction. Following the full-scale invasion in 2022, the ICC consolidated these proceedings with the ongoing investigation of crimes committed in Ukraine since 2014. This article analyzes how the ICC's jurisdiction applies to Ukraine, the challenges and prospects for cooperation between the ICC and Ukraine in investigating crimes committed by Russian forces, and the broader implications for the international criminal justice system. The

#### Анотація

У цій статті розглядаються правові відносини між Міжнародним кримінальним судом (МКС) та Україною, яка не є учасником Римського статуту, з акцентом на обсяг юрисдикції Суду щодо розгляду звернень України щодо тяжких злочинів, скоєних на її території з 2014 року. Обговорення щодо поширення юрисдикції МКС на Україну розпочалося у 2014-2015 роках після двох запитів України про визнання юрисдикції МКС ad hoc. Після повномасштабного вторгнення у 2022 році МКС об'єднав ці провадження з поточним розслідуванням злочинів, скоєних в Україні з 2014 року. У цій статті аналізується, як юрисдикція МКС застосовується до України, виклики та перспективи співпраці між МКС та Україною у розслідуванні злочинів, скоєних російськими військами, а також ширші наслідки для міжнародної системи

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authors analyze arguments for and against Ukraine's ratification of the Rome Statute, concluding that the ICC's jurisdictional framework, particularly concerning the crime of aggression, requires refinement.

**Keywords:** international law, human rights, war crimes, genocide, international responsibility, international sanctions.

## Introduction

The security of individual states and international security as a whole directly depends on how quickly and efficiently the international community can respond to the commission of international crimes, including by bringing to justice those who order such crimes. The effective operation of criminal justice at the international level is designed not only to prosecute international crimes, but also to prevent international crimes in the future (Gutnyk, 2023). Unfortunately, humanity has not yet learned to solve geopolitical problems in a peaceful, diplomatic manner (Kaplina, 2022).

The armed aggression of the Russian Federation against Ukraine is forcing a rethinking of the international criminal justice system. Today, this system is undergoing a test of effectiveness (Gutnyk, 2023), and one of the pillars of the international criminal justice system is the International Criminal Court (ICC) (Ali Al Omar & Allwan Al Amery, 2024), established in accordance with the Rome Statute of the International Criminal Court in 1998 (United Nations, 1998).

The ICC is the only institution in the modern international legal system that can prosecute war crimes in Ukraine (Rynkun-Werner et al., 2023). The ICC is competent to implement the principle of inevitability of punishment for international crimes and to prevent similar crimes in the future (Gutnyk, 2023). The crimes under the jurisdiction of the ICC pose a threat to international peace and security (Pavlenko & Ohievich, 2020) - genocide, war crimes, crimes against humanity and the crime of aggression are recognised by the international community as the most serious crimes that should not go unpunished.

The creation of the ICC at the turn of the XX and XXI centuries marked the beginning of a new stage in the development of criminal justice (Smyrnov, 2023), the purpose of which is to bring to justice those responsible for the most serious crimes. The ICC is a form of international legal system that emerged when human society reached a certain stage of development (Geng, 2023), when information, as a dominant worldview element (Maraieva, 2022) became the main tool in the criminal investigation process, although the close connection between information, freedom, justice and law was noticed long ago (Gennadievich Danilyan et al., 2018).

Ukraine took an active part in the development of the Rome Statute, and a Ukrainian delegation participated in the Diplomatic Conference held in Rome on 15 June - 17 July 1998 (Drozdov et al., 2022). According to contemporaries of those events, the creation of the International Criminal Court is a historic phenomenon in efforts to bring to justice those guilty of the most serious international crimes, the victims of which are many innocent people (Syroid, 2009b). Today, 124 countries are parties to the Rome Statute (United Nations, 1998), which is recognised as a rather flexible document that allows to look for ways of convergence between national legislation and the Statute rather than contradictions (Drozdov et al., 2022).

After the beginning of the Russian military aggression in Ukraine, the regional military conflict has acquired the features of a global confrontation (Derviş, 2023), and the leaders of at least European countries and North America have reached a consensus on the need to bring the leaders of the Russian Federation to justice for the crimes committed in Ukraine (Heller, 2024). However, there is no consensus on how to bring the top Russian officials to justice (Heller, 2024). As a result of the full-scale invasion of the territory of Ukraine by Russian troops, ICC Prosecutor Karim Khan announced the opening of an investigation into potential war crimes committed in the context of the conflict (International Criminal Court, 2022).

The first major step taken by the ICC in relation to the war in Ukraine was unprecedented and groundbreaking (Rynkun-Werner et al., 2023) – on 17 March 2023, it issued arrest warrants for Russian

кримінального правосуддя. Автори аналізують аргументи за і проти ратифікації Україною Римського статуту, роблячи висновок, що юрисдикційна рамка МКС, особливо щодо злочину агресії, потребує уточнення.

**Ключові слова:** міжнародне право, права людини, воєнні злочини, геноцид, міжнародна відповідальність, міжнародні санкції.

President Vladimir Putin and the Children's Ombudsman of the Office of the President of the Russian Federation, Maria Alekseevna Lvova-Belova (International Criminal Court, 2022).

However, the ICC's investigation in Ukraine faces many obstacles, in particular because neither Ukraine nor Russia has ratified the Rome Statute. Although Ukraine has recognised the ICC's jurisdiction over certain situations, this gives legal grounds to assert that international crimes have been committed in Ukraine since 2014 (Schüller, 2023) and require further investigation. The purpose of this article is to determine how the ICC's jurisdiction extends to Ukraine, what legal mechanisms the court uses to investigate crimes in Ukraine in the absence of ratification, and what are the challenges and prospects for further cooperation between the ICC and Ukraine to investigate crimes committed by Russian troops in Ukraine.

To achieve the aforementioned goal, the following tasks are set forth in the research:

1. Determine the scope of the ICC's jurisdiction over Ukraine, under which principles and legal constructs the ICC's authority can be exercised.
2. Identify the main problems in applying the ICC's jurisdiction to legal relations arising from international crimes committed on the territory of Ukraine – the lack of ratification of the Rome Statute, the delimitation of jurisdiction between the ICC and other judicial institutions in investigating the crimes of Russian aggression in Ukraine, the application of the ICC's jurisdiction ad hoc – and outline ways to overcome them.
3. Determine the prospects for cooperation between Ukraine and the ICC to investigate crimes committed by Russian troops on the territory of Ukraine and assess the potential of Ukraine's ratification of the Rome Statute.

Thus, the structure of the article is built in such a way as to gradually answer all the tasks set and consists of:

- Introduction – provides a general overview of the issue under study,
- Methodology – the author describes the methodology and process of conducting this research,
- Results – the issues of Scope of the ICC's jurisdiction (1), Problems of applying the ICC's jurisdiction in Ukraine (2), Delimitation of jurisdiction between the ICC, the International Court of Justice, and the ECHR (3) are considered separately.
- Discussion – the prospects of applying the ICC's jurisdiction to investigate the crimes of aggression of the Russian military in Ukraine and the issue of Ukraine's ratification of the ICC Statute are considered.
- Conclusion – conclusions from this study are presented, indicating limitations and further directions of scientific development.

## Methodology

To study the ICC's jurisdiction over Ukraine, a comprehensive approach was applied based on general scientific research methods: analysis, synthesis, comparison, analogy, and modelling. The method of comparison and analogy was used to develop Table 1, and the modelling method was used to compile the content of the ICC's jurisdiction, as shown in Figure 1.

### *Data collection*

The scientific basis of the study is based on the works of scholars on the jurisdiction and powers of the ICC, the role of the ICC in the investigation of international crimes, published in the scientific and metric databases WoS, Science Direct, ResearchGate. The legal basis of the study is the 1998 Rome Statute of the ICC, the Constitution and laws of Ukraine. The source of up-to-date information on the status of the ICC's investigation of crimes in Ukraine was the official ICC web portal <https://www.icc-cpi.int/>

### *Data analysis*

The author gathered over 50 articles from scientific metric databases on the given topic, published between 2018 and 2024. Among these, 30 scientific studies relevant to illuminating the scope of the ICC's jurisdiction, particularly in Ukraine after 2014, were selected. The method of legal analysis (of normative acts) and thematic analysis (of articles and publications) was used to process the information obtained. The

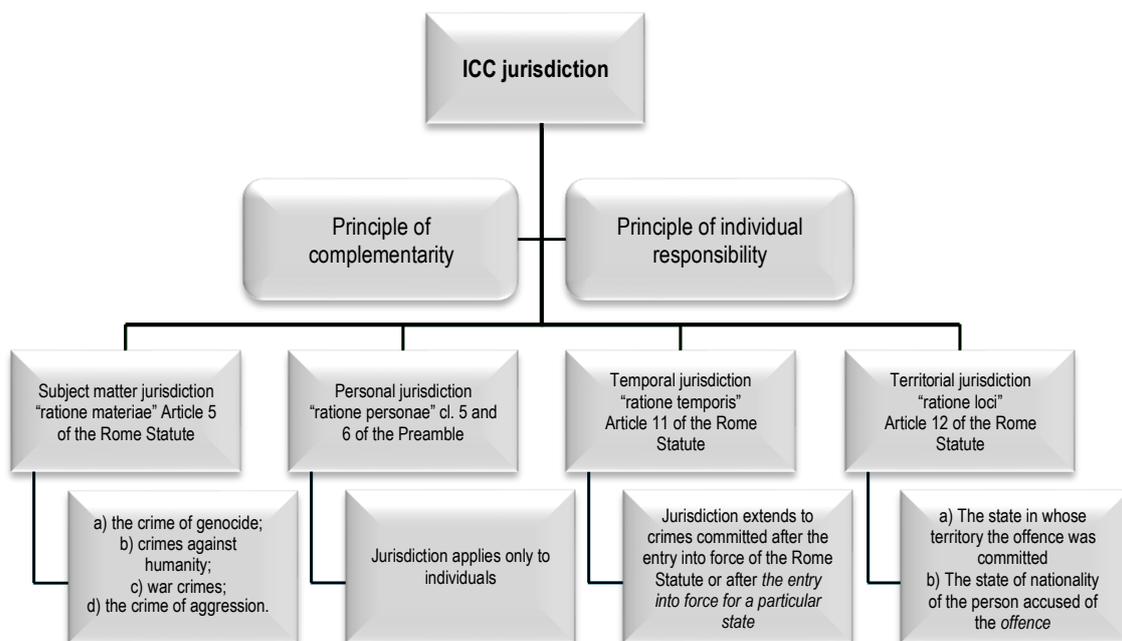
comparative legal method was used to delineate the jurisdiction of the ICC and other international judicial institutions. In general, the author has applied a comprehensive systematic approach to the study of this issue, which allows us to consider the obtained results of the scientific legal research to be reliable.

## Results

### Scope of the ICC's jurisdiction

In international law, the term “jurisdiction” can be applied to a state (national jurisdiction as a manifestation of state sovereignty) and to a court (international jurisdiction). The term “court jurisdiction” is defined as the power or competence of a court or judge to convict or award a remedy under the law (Black, 1968).

Based on this, the jurisdiction of the ICC should be interpreted as the authority to investigate and prosecute international crimes within the limits set out in its Statute. Gutnyk proposes to consider the jurisdiction of the ICC as a complex concept that includes “substantive (“*ratione materiae*”), personal or personality (“*ratione personae*”), temporal (“*ratione temporis*”) and spatial or territorial (“*ratione loci*”) jurisdiction” (Gutnyk, 2024), which is based on a number of jurisdictional principles (Geng, 2023). A visualization of the concept of the ICC's jurisdiction is presented in Figure 1.



**Figure 1.** Contents of the ICC's jurisdiction.

Source: authors' elaboration based on Part II of the Rome Statute (United Nations, 1998), Drozdov et al. (2022), Gutnyk (2024).

An important issue for determining the ICC's jurisdiction is the admissibility of a case, which, according to the Rome Statute, is decided on the basis of the principle of complementarity provided for in paragraph 10 of the Preamble and in Articles 1 and 17: the ICC “complements national criminal justice authorities” (United Nations, 1998), and is a court of last resort (DROZDOV et al., 2022). The application of the principle of complementarity creates a special order of relations between national and international jurisdictions (Smyrnov, 2023). This means that the ICC complements the national criminal justice systems of a state (United Nations, 1998). The general rule is that the ICC has no right to replace or substitute national courts, the role of the ICC is complementary (Rynkun-Werner et al., 2023).

Furthermore, the ICC should only deal with the most serious crimes, which requires an assessment of the gravity of the crime, which is carried out in both quantitative and qualitative terms, with attention to the nature, scale and method of the crime and the impact of its harmful consequences (Rynkun-Werner et al., 2023). In a situation where the jurisdiction of national courts and the International Criminal Court overlap,

the general rule is to give priority to the former, with the jurisdiction of the ICC recognised on a supplementary basis (Rynkun-Werner et al., 2023).

In addition to the principle of complementarity, the ICC's jurisdiction is based on the principle of individual criminal responsibility (Smyrnov, 2023), which means that the court can only prosecute individuals whose actions are qualified as crimes by the court, and the court does not have the power to prosecute the state. At the same time, the state cannot grant immunity to the president, prime minister, cabinet minister or parliamentarian who are subject to criminal liability under the Rome Statute (Rynkun-Werner et al., 2023).

The problems associated with the application of the ICC's jurisdiction over Ukraine stem from several reasons.

1. Ukraine signed the Rome Statute on 20 January 2000, but it has not yet ratified it, although this issue has been raised on several occasions, especially in light of the events after 2014 (annexation of Crimea and the start of the Anti-Terrorist Operation in eastern Ukraine).

In order to implement the provisions of the Rome Statute into Ukrainian legislation, the President of Ukraine submitted a petition to the Constitutional Court of Ukraine on the compliance with the provisions of the Constitution of Ukraine. As a result, on 11 July 2001, the Constitutional Court issued its opinion that the Rome Statute does not comply with the provisions of the Constitution of Ukraine in terms of “the provisions of paragraph 10 of the Preamble and Article 1 of the Statute, according to which the International Criminal Court ... shall complement national criminal justice authorities” (Verkhovna Rada of Ukraine, 2001). This decision of the Constitutional Court has been repeatedly criticised by the Ukrainian scientific community and recognised as an erroneous interpretation of the provisions of the Rome Statute (Drozdov et al., 2022; Gutnyk, 2024).

In order to resolve this conflict, the Constitution of Ukraine was amended in 2016 to Section VIII “Justice”, Article 124 was supplemented with part six “Ukraine may recognise the jurisdiction of the International Criminal Court under the conditions set out in the Rome Statute of the International Criminal Court” (Verkhovna Rada of Ukraine, 1996). However, even after this provision came into force in 2019, the Rome Statute was not ratified. According to Smyrnov, one of the reasons for the lack of ratification of the Rome Statute is the complementary nature of the ICC's jurisdiction (Smyrnov, 2023). Another reason for the delay is the Ukrainian authorities' fear of interference with the sovereignty of the state, but in international law, states are usually forced to self-restrict their sovereign rights, but without losing their sovereignty (Bytyak et al., 2017).

With the beginning of the full-scale invasion, the focus was again on the ratification of the Rome Statute. In May 2022, the Verkhovna Rada of Ukraine amended the Criminal Procedure Code of Ukraine by adding Section IX<sup>-2</sup> “Peculiarities of Cooperation with the International Criminal Court”, which extends the jurisdiction of the ICC to Ukrainian citizens, foreign citizens and stateless persons who committed a crime with the aim of armed aggression against Ukraine on the basis of decisions of authorised persons of the Russian Federation or another country that committed aggression or facilitated aggression against Ukraine (Verkhovna Rada of Ukraine, 2012). This section establishes the rules of interaction between the criminal justice authorities of Ukraine and the ICC in matters of investigation, trial and execution of the ICC judgements (Smyrnov, 2023).

2. The fact that Ukraine has not ratified the provisions of the Rome Statute does not prevent Ukraine from applying to the court and conducting investigations into the crimes under Article 5. The Rome Statute, in particular Article 12, provides for the possibility for a state to recognise the jurisdiction of the ICC over certain matters without ratifying it (United Nations, 1998). Ukraine has twice applied to the ICC under the legal mechanism of “limited ratification” (Smyrnov, 2023) in 2015, with an application for recognition of its jurisdiction over crimes against humanity and war crimes committed by officials of the Russian Federation and leaders of the terrorist organisations “DPR” and “LPR”, which led to particularly grave consequences and massacres of Ukrainian citizens (Verkhovna Rada of Ukraine, 2015) and with an application for crimes against humanity committed by senior officials of the state, which led to particularly grave consequences and massacres of Ukrainian citizens during peaceful protests between 21 November 2013 and 22 February 2014 (Verkhovna Rada of Ukraine, 2014).

In these applications, the ICC's substantive jurisdiction is limited - the investigation is conducted within the crime of genocide, crimes against humanity and war crimes, and cannot be conducted in relation to the crime of aggression, as this crime is subject to a special procedure for recognising jurisdiction under Articles 15 bis and 15 ter of the Statute (United Nations, 1998).

Also, the ICC's territorial jurisdiction is limited, the investigation can be carried out in the alleged territories of the crimes – the territory of Ukraine, including the temporarily occupied territories of Donetsk and Luhansk regions and the Autonomous Republic of Crimea.

The ICC's jurisdiction to investigate these applications has a time limit: in relation to the events on Euromaidan - from 21 February 2013 to 22 February 2014, in relation to the armed conflict - from 20 February 2014 without a deadline; the ICC's jurisdiction in these situations is retroactive.

The ICC's jurisdiction is not limited in terms of the range of persons, the court can prosecute both citizens of Ukraine and Russia and other states or stateless persons; the ICC Prosecutor will decide who to prosecute (Marchuk & Wanigasuriya, 2022).

After several years of preliminary checks, the ICC Prosecutor's Office decided in 2020 to launch an investigation, emphasising that additional resources would be required (SCHÜLLER, 2023). It is obvious that in the vast majority of cases, the Rome Statute places the burden of proof on the Prosecutor, who must respond in a timely manner to the commission of serious international crimes (Syroid, 2009a). Following the full-scale invasion of Ukraine by Russian troops, the ICC Prosecutor announced that Ukraine's application regarding the events in the 'DPR' and 'LPR' since 2014 and the investigation into the events after 24 February 2022 would be merged into a joint proceeding (International Criminal Court, 2022). Thus, in the period from 2016 to 2022, the Ukrainian authorities took significant steps to bring national legislation in line with the Rome Statute (Murachov, 2023).

Today, based on the principle of separation of powers (KUMAR, 2021), several international tribunals can play a role in reviewing Russia's actions in Ukraine and punishing those responsible for committing crimes, primarily the International Court of Justice (ICJ), the International Criminal Court (ICC) and the European Court of Human Rights (ECtHR) (Congressional Research Service, 2023), each of which has initiated proceedings on Ukraine's applications against Russia. In this regard, the jurisdiction of these courts is delineated in Table 1.

**Table 1.**  
*Delimitation of jurisdiction of the ICC, the International Court of Justice and the ECtHR.*

Basis for comparison	ICC	International Court of Justice	ECHR
Date of creation	July 2002	June 1945	1959 year
The reason for creation	Rome Statute of the International Criminal Court	United Nations Charter Chapter XIV	European Convention on Human Rights Section II
Location	Hague, The Netherlands	Hague, The Netherlands	Strasbourg, France
Subject matter jurisdiction	<ul style="list-style-type: none"> <li>Genocide,</li> <li>War crimes,</li> <li>Crimes against humanity,</li> <li>Crimes of aggression.</li> </ul>	all matters referred by the parties and all matters specifically provided for in the UN Charter or in applicable international treaties and conventions	Cases of violation of human rights enshrined in the European Convention on Human Rights
Territorial jurisdiction	States parties to the Rome Statute, other countries under special conditions	UN countries, other countries in exceptional cases	Countries of the Council of Europe
Personal jurisdiction	Investigations of individuals responsible for the most serious crimes	Settlement of disputes between UN states; between other states in exceptional cases	Consideration of applications by individuals against a Council of Europe member state

Source: authors' development on the basis of the Rome Statute (United Nations 1998), International Court of Justice (1945), European Convention on Human Rights (1950)

Ukraine actively uses all three international institutions to punish those responsible for crimes committed on its territory. However, as can be seen from Table 1, only the ICC has the competence to prosecute the most serious crimes committed in wartime.

3. The ICC's jurisdiction to prosecute the crime of Russian aggression against Ukraine.

Based on the above, the ICC's jurisdiction extends to cases where a state has referred a specific situation to the court, or such a situation has been referred to the court by the UN Security Council, or an investigation has been initiated by the ICC Prosecutor (Drozdov et al., 2022). The latter case became the basis for the actions of the ICC Prosecutor Kareem Khan after 24 February 2022.

However, in accordance with Article 15 bis (4 and 5) of the Rome Statute, Karim Khan's actions do not apply to the investigation of a crime of aggression - in the case of an act of aggression committed by a state that, like the Russian Federation, has not acceded to the Rome Statute, the initiation of an investigation differs from the procedure for cases of genocide, war crimes and crimes against humanity (Kress et al., 2023).

In this regard, the question of bringing the Russian authorities to justice for the crime of aggression, which is also a violation of one of the pillars of the UN Charter, the prohibition of the use of force, remains controversial. Since 2018, the ICC has had the power to prosecute the crime of aggression, but there is an exception to this crime that does not apply to the other three core crimes, as Article 15 bis (5) of the Rome Statute requires that the aggressor state must also be a party to the Rome Statute (United Nations, 1998), or under the condition of a referral by the UN Security Council, which is not a viable option in this situation, as Russia will not vote for such actions (Schüller, 2023). Therefore, Prosecutor Khan has no choice but to abstain from considering charges of crimes of aggression. This means that he is forced to conduct his investigations in a limited manner (Kress et al., 2023).

## Discussion

The prospect of Ukraine's ratification of the Rome Statute remains open, and Ukraine's position on its intention to ratify the Rome Statute is rather inconsistent and contradictory, reinforced by the latent conflict between civil society organisations and the political authorities in contemporary Ukrainian society (Udzhmadzhuridze et al., 2019).

Proponents of Ukraine's accession to the Rome Statute argue that it will “bring Ukraine closer to the universally recognised standards of the UN, the Council of Europe and the European Union in the fight against the most serious crimes that are of concern to the entire international community”. In arguing for the need for Ukraine to ratify the Rome Statute, Marchuk (2021) draws an analogy with Ukraine's ratification of the European Convention on Human Rights, on the basis of which it recognises the judgments of the ECtHR. In this context, the question arises as to how the ICC proceedings differ from the ECtHR proceedings from the point of view that both courts are international judicial institutions that perform a complementary function to the Ukrainian judicial system - they consider cases when all national judicial means have been exhausted or cannot be applied (Marchuk, 2021).

Opponents of Ukraine's accession to the Rome Statute argue that the ICC will not be effective in investigating crimes and punishing those responsible among the Russian leadership (Mcdougall, 2023), ICC has no jurisdiction to investigate crimes of Russian aggression in Ukraine (Dannenbaum, 2022). Establishment of a special international tribunal is considered to be the only viable way to prosecute crimes of aggression committed against Ukraine (Mcdougall, 2023). The new international tribunal is needed because the ICC is currently unable to adjudicate on the crime of aggression committed by Russia, and national courts will struggle in the face of such obstacles as the immunity of the highest authorities of the Russian Federation (Grzebyk, 2023).

However, this proposal also did not receive unequivocal assessments. For example, researchers argue that such a court will go down in history as a special court created for one specific situation, rather than as applicable to others, especially if it includes trials in absentia while there is a permanent international criminal court.

The only way to resolve the legitimacy issue is to expand the ICC's jurisdiction over the crime of aggression by amending the Rome Statute accordingly. Instead of a one-off ad hoc court, the ICC should be given jurisdiction to deal with similar future situations of crimes of aggression. Only such a step could stabilise the global legal order, rather than further fragment it by doing the bidding of stronger states (Schüller, 2023).

In addition, due to the severe negative impact of hostilities on Ukraine's environment, which was characterised as unsatisfactory even before the war began (Kovaliuk et al., 2020), the discussion on the extension of the ICC's substantive jurisdiction to include the crime of ecocide has become relevant (Shumilo, 2021). The conflict in Ukraine is an opportunity to improve the Rome Statute and ensure that anyone who commits a crime of aggression does not go unpunished in the future (Moreno Ocampo, 2023).

In the light of Ukraine's potential accession to the Rome Statute, other problems of the ICC's functioning arise, including the lack of expected effectiveness, initiation of proceedings, obstacles to the transfer and referral of cases to the court (Ali Al Omar & Allwan Al Amery, 2024), the duration of the proceedings, as well as the issue of proper cooperation between the ICC and states, as cooperation is the main form of enforcement of ICC decisions (Matkovskiy, 2023). There are some serious problems related to the issue of an enforcement mechanism for States Parties that refuse to cooperate with the court, and there is no such mechanism yet. In general, these issues are beyond the scope of this study and may be the subject of further research.

Given the unique course of international criminal proceedings, this study has certain limitations, motivated by the ongoing active investigation of the ICC, on the one hand, and the duration of hostilities, respectively - the commission of new crimes against humanity, war crimes, and crimes of aggression by Russian troops on the territory of Ukraine, on the other hand. Limitations in the research are caused, in addition to the above, by the lack of access to information about the progress of the investigation, except for that officially published on the ICC website. This issue has great research potential, as the application of the ICC's jurisdiction in Ukraine creates a precedent for the application of international law for future generations.

Conducting scientific research on current events as they unfold also carries certain risks regarding the author's impartiality and the objectivity of information available in open sources. This phenomenon, in light of the criminal proceedings regarding the investigation of crimes committed by Russian troops on the territory of Ukraine since 2014, is one of the possible directions for further scientific research.

## Conclusions

International law and cooperation between states and international organisations will play a crucial role in the fight against impunity for the most serious crimes against the Ukrainian population (Lanza, 2022). In the current international system, the ICC is the most advanced institutional model of the existing international criminal justice bodies (Smyrnov, 2022). The ICC's jurisdiction extends only to crimes specified in the Rome Statute, with an extremely limited scope, and the explicit consent of the countries concerned is usually required for the ICC to exercise its jurisdiction.

As of today, Ukraine has found a legal way to recognise the jurisdiction of the ICC over crimes committed and still being committed on its territory, which gives hope for a fair trial and prosecution of the perpetrators, but the issue of ratification of the Rome Statute remains relevant. The Ukrainian authorities should be commended for taking the first positive steps in this direction, including amendments to the Constitution and the Criminal Procedure Code of Ukraine. At the same time, the very system of determining the ICC's jurisdiction enshrined in the Rome Statute, in particular with regard to the crime of aggression, needs to be improved in order to more effectively prosecute the most serious crimes.

The novelty of this study lies in summarizing possible scenarios for cooperation between the ICC and Ukraine to investigate the crimes of the Russian military on the territory of Ukraine. The author's identification of all problematic aspects of Ukraine's ratification of the Rome Statute deserves special attention, as well as the legal analysis of the current algorithm of cooperation between Ukraine and the ICC in the absence of ratification.

The issues of limiting the ICC's jurisdiction in Ukraine, the procedure for enforcing ICC decisions for Ukraine and Russia are potential areas of scientific research. Also, the issue of delimiting the jurisdiction of the ICC and other international judicial bodies regarding the investigation of war crimes and crimes of aggression committed on the territory of Ukraine from 2014 to the present, the beginning of which is laid in this work, requires further doctrinal development.

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