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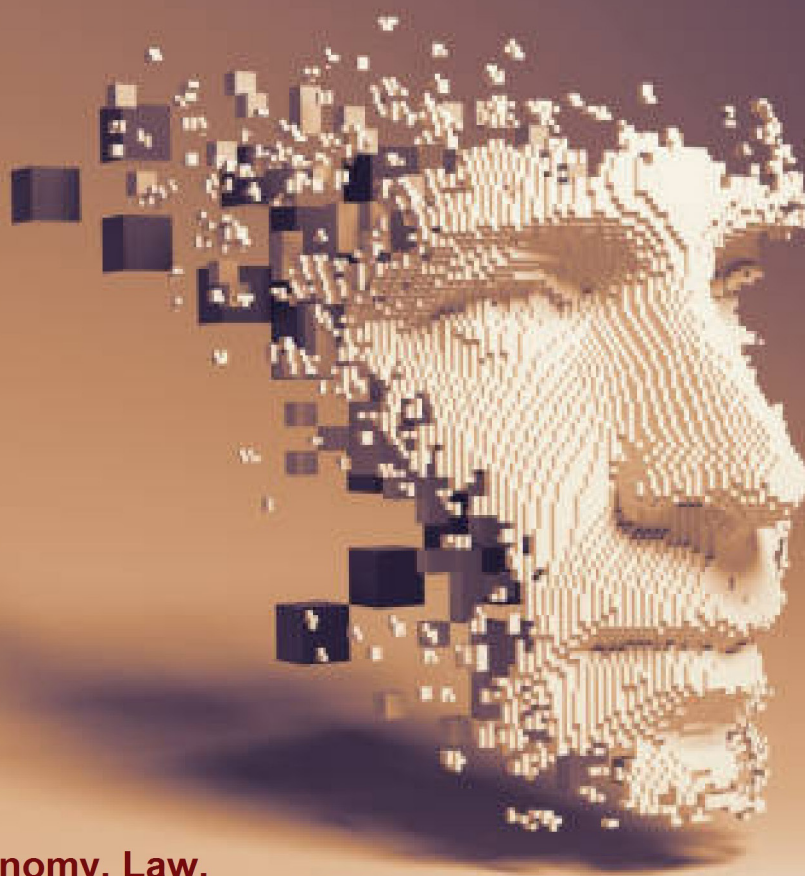
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# CONTENTS

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## **HOW PRIMARY STUDENTS UNDERSTAND THE CONCEPTS OF MIXTURES AND SOLUTIONS**

*Emina Popović, Sanja Balać, Marija Bošnjak Stepanović, Olja Maričić, Danijela Petrovic.....*1-6

## **LEGAL ORDER AND INTERPRETATION OF LAW: HOW THE INTERPRETATION OF LAW SHAPES STATE POWER**

*Ljupka Petrevska, Jelena Golijan.....*7-11

## **FROM KNOWLEDGE TO INNOVATION: A REVIEW OF THE FACTORS, COMPONENTS, AND IMPACT OF ABSORPTIVE CAPACITY**

*Nebojša Zakić, Lazar Stošić, Marina Bugarčić.....*13-18

## **ENERGY INSECURITY AND ITS HEALTH IMPACTS: A MULTI-DIMENSIONAL ANALYSIS**

*Jovana Vitošević.....*19-25

## **AN ANALYSIS OF THE IMPACT OF FINANCIAL INCLUSION DETERMINANTS ON POVERTY ALLEVIATION IN SERBIA**

*Aleksandar Božović.....*27-32

## **ARTIFICIAL INTELLIGENCE AND DATA ANALYTICS IN HUMAN RESOURCE MANAGEMENT: DIGITAL TRANSFORMATION AND COMPETITIVE ADVANTAGE OF ENTERPRISES**

*Aleksandar M. Damjanović, Milan D. Rašković, Volodymyr N. Skoropad.....*33-38

## **POLICE INTEGRITY TESTING AND ITS OUTCOMES IN THE REPUBLIC OF SERBIA**

*Marija Tasić, Dragan Milovanović.....*39-45

## **ECONOMIC AND SOCIAL DEVELOPMENT OF THE REPUBLIC OF SERBIA THROUGH THE PRISM OF RELATIONS WITH THE UNITED STATES AND NATO**

*Ilija Životić, Darko Obradović.....*47-51

## **EXTRACURRICULAR ACTIVITIES OF MUSICALLY GIFTED STUDENTS: PARENTS' PERCEPTION**

*Nedeljko M. Milanović, Andrijana Ž. Miletić, Olivera D. Cekić-Jovanović*.....53-57

## **THE ROLE OF THE POLICE AND THE PUBLIC PROSECUTOR'S OFFICE IN THE PREVENTION OF DOMESTIC VIOLENCE IN SERBIA**

*Saša Marković, Siniša Dostić*.....59-65

## **BIBLIOTHERAPY AS A PSYCHO-PEDAGOGICAL TOOL FOR FOSTERING ECOLOGICAL BEHAVIOUR AND EMOTIONAL CONNECTION WITH NATURE: A CONCEPTUAL MODEL FOR REDUCING ECO-ANXIETY IN PRIMARY SCHOOL STUDENTS AND CONTRIBUTING TO THE THEORY OF UPBRINGING**

*Avi Abner*.....67-72

## **BUSINESS PARTNERSHIPS WITH EDUCATIONAL INSTITUTIONS IN THE ERA OF DIGITAL TRANSFORMATION**

*Lalka Borisova, Tsvetan Iliev, Gergana Rashkova*.....73-79

## **APPLICATION OF THE MEASUREMENT MODEL OF NON-FINANCIAL PERFORMANCE IN RETAIL**

*Danijela M. Andjelković, Dragomir Dimitrijević*.....81-85

## **VICTIMS OF SEXUAL OFFENCES AS PARTICULARLY SENSITIVE WITNESSES**

*Enio Mateo Totić, Zvezdan Radojković*.....87-92

## **EGO-MOVING AND TIME-MOVING METAPHORS IN THE LANGUAGES OF BIH, AND THE ROLE OF EMOTIONAL VALENCE IN TEMPORAL COGNITION**

*Emir Muhić, Nenad Blaženović, Sanel Hadžiahmetović Jurida*.....93-99

## **DIGITAL MOBILITY AS AN OPPORTUNITY FOR SOCIAL INCLUSION: FORMS OF PARTICIPATION AND SOCIAL PERSPECTIVES AMONG ROMA YOUTH**

*Kamelia Petkova*.....101-107

## **PHILOSOPHY OF WAR IN THE AGE OF ARTIFICIAL INTELLIGENCE: ETHICS, TECHNOLOGY, AND THE TRANSFORMATION OF MILITARY POWER**

*Aleksandar M. Pavić, Hatidža A. Beriša*.....109-115

## **COACHING MODELS AND TECHNIQUES IN EDUCATION**

*Desislava Aleksandrova*.....117-120

## **DEFINING PUBLIC INTEREST: CRITERIA FOR LEGAL IMPLEMENTATION**

*Nebojša Jerinić, Sofija Vujičić Vukićević*.....121-126

## **PERSPECTIVES OF ANALYSIS OF THE STATE OF THE COMPANY THROUGH HORIZONTAL AND VERTICAL ANALYSIS FOR THE PURPOSE OF FUTURE PREDICTIONS**

*Gordana Stojmenović, Mile Samardžić, Filip Dimitrov, Pavle Trpeski*.....127-132

## **POSSIBILITIES OF CORRELATION IN THE TEACHING OF MUSICAL CULTURE IN CLASSROOM TEACHING**

*Teodora Kragović, Anđelka Kovač, Biljana Belojica Pavlović*.....133-138

## **CELEBRITY ENDORSEMENTS IN SUPER BOWL ADVERTISING DURING THE PERIOD 2021–2025**

*Aleksandra Belačić, Slavko Alčaković*.....139-143

## **UTOPIAN MOTIFS IN THE NOVEL “ZULEIKHA” BY GUZEL YAKHINA**

*Irena Subotić*.....145-149

## **SUMMER OUTDOOR ACTIVITIES IN DIFFERENT EDUCATIONAL SETTINGS – TWO “MODELS” OF PRACTICAL COURSE ORGANIZATION REGARDING CAMP LOCATION**

*Jasna Popović, Miloš Popović, Tijana Purenović-Ivanović, Milan Dolga, Ružena Popović*.....151-160

## **SEARCHING FOR IDENTITY IN FEMALE CHARACTERS IN WILLIAM SHAKESPEARE’S COMEDIES**

*Anita Dimitrijevska-Jankulovska, Milica Denkovska*.....161-164

## **EUROPEAN DEVELOPMENT FUNDS IN THE ECONOMY OF NORTH MACEDONIA (2021–2027)**

*Petar Bogojeski*.....165-168

# HOW PRIMARY STUDENTS UNDERSTAND THE CONCEPTS OF MIXTURES AND SOLUTIONS

*Emina Popović<sup>1\*</sup>, Sanja Balać<sup>1</sup>, Marija Bošnjak Stepanović<sup>1</sup>, Olja Maričić<sup>1</sup>, Danijela Petrović<sup>1</sup>*

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**Abstract:** A key and persistent challenge in early science education is effectively transforming complex scientific concepts into didactic material. To meet the demands of modern teaching, practitioners and researchers are constantly developing and adapting effective science teaching models. Accordingly, selected chemical content was taught through pilot projects using the Inquiry-Based Science Education approach. The study assessed how the designed Inquiry-Based Teaching Model affected students' knowledge quality. This innovative teaching model applies STEAM+X educational framework to guide students through inquiry, dialogue, critical thinking and experiential learning, thereby contributing to the development of their persistence in problem solving, collaborative skills and unique creative abilities. The goal of this research was to check whether it is possible, and if so, how to teach concepts of mixtures and solutions in the 4th grade of elementary school through the particulate nature of matter. The research was conducted at one elementary school in Serbia on a total sample of 21 students. The obtained results show that students accomplished better achievements on the post-test compared to the pre-test, which, along with the observed high motivation of students to learn through inquiry, confirmed the effectiveness of the created and applied teaching model. The implemented IBTM facilitated a comprehensive understanding of mixture and solution properties, accurate classification of examples, improved comprehension of separation procedures, and enhanced knowledge of substance solubility in water. However, categorizing the properties of mixtures and solutions based on similarities and differences proved challenging for students at this age, irrespective of the teaching model. Given the promising potential of the obtained data, this study provides valuable insights for the future application of these or modified models across varied teaching content, with larger samples, and over longer time frames.

**Keywords:** *initial science education, STEAM+X teaching approach, mixtures and solutions.*

**Field:** Social sciences

## 1. INTRODUCTION

The essence of Inquiry-Based Science Education (IBSE), or simply Inquiry, is that children, through the active pursuit of compelling questions and problems, construct their own understanding and refine their learning strategies. The cognitive and procedural skills developed through inquiry-based learning directly correspond to those utilized in scientific investigation, thus enabling children to effectively interpret the scientific dimensions of their natural and constructed environment (Harlen, 2014).

STEAM education has become a highly influential educational movement. Its emphasis on integrating science, technology, engineering, arts, and mathematics reflects a modern approach to learning. (Singh, 2021). The pedagogical intent of STEAM is to move away from isolated disciplinary perspectives, and therefore to foster a holistic approach to problem-solving. (Kim & Park, 2012; Li et al., 2020). This novel STEAM + X pedagogical design merges STEAM with architecture, culture, and history, creating learning experiences that concurrently advance language proficiency for both teachers and students, irrespective of their disciplinary backgrounds (Bedewy & Lavicza, 2023). According to Miralimovna (2022), effective teacher discourse in STEAM activities promotes the scientific method. This necessitates teachers designing research activities that encourage "thinking aloud" and the use of STEAM terminology, such as observe, investigate, predict, and conduct experiments.

The abstract nature of atomic concepts, coupled with insufficient practical activities in teaching, significantly hinders students' comprehension of the particulate nature of matter. This abstractness stems from the fact that particle arrangement and behavior are not directly observable at the macroscopic level (Riaz, 2004). Findings reveal a persistent challenge for students of all ages in understanding the scientifically accepted particulate model of matter, which describes matter as composed of discrete, perpetually moving particles separated by space. This particulate model is a prerequisite for a robust understanding of dissolution mechanisms (Nakhleh, 1992).

The challenge of teaching science lies in addressing and modifying students' intuitive, but often scientifically incorrect, explanations of phenomena (Theobald & Brod, 2021). Research on misconceptions

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typically focuses on three key areas: identification through diagnostic testing, investigation of causes, and remediation strategies. Diagnostic and remediation approaches are the most frequently explored areas (Resbiantoro et al. 2022).

A study by Cañada et al. (2017) that included the 5th grade students has shown to which extent it is important to encourage the understanding of how components build more complex substances (mixtures and solutions). Besides an observation of the differences between mixtures and solutions, the authors emphasized the importance of simultaneous adoption of two concepts: the building of complex substances and the existence of small, invisible particles dissolved in solvents. Furthermore, Lofgren & Hellden (2008) indicated the importance of an early introduction of scientific ideas about chemical and physical changes of substance into the teaching process (the change in the colour of fallen leaves, the process of burning a candle and the condensation of water vapour), since it contributes to the gradual development and establishment of students' knowledge. In light of the foregoing, it would be useful to form an inventory of preconceptions at the initial school learning about natural phenomena, and in accordance with it, to design the teaching models that would prevent the 'recycling' of wrong beliefs in following years.

Synthesizing findings from previous investigations, this study developed and implemented a novel IBTM. This model, which integrates the particulate nature of matter, a concept currently outside the Republic of Serbia's curriculum, was piloted to assess its effectiveness in teaching mixtures and solutions. The present study addressed the following research questions:

1. What is the impact of the inquiry-based teaching model (IBTM) on the knowledge acquisition of 4th-grade primary school students regarding mixtures and solutions?
2. To what degree does the IBTM enhance students' conceptual understanding of mixtures and solutions through the lens of the particulate nature of matter?

## 2. MATERIALS AND METHODS

In this study, 21 fourth-grade students (13 girls, 8 boys) from Elementary School 'Nikola Vukićević' (NV) in Sombor, Serbia, participated in an intervention utilizing an inquiry-based teaching model (IBTM) specifically designed for the instruction of mixtures and solutions. The subsequent analysis examined the impact of this intervention on student knowledge development.

Student prior knowledge of mixtures and solutions was assessed using a pre-test, while a post-test evaluated the IBTM's impact on knowledge acquisition and conceptual understanding. Both tests comprised 12 questions, designed to measure six cognitive levels (recognition/remembering, understanding, application, analysis, evaluation, and creation) aligned with the revised Bloom's taxonomy (Anderson et al., 2001). This structure allowed for a detailed examination of student preconceptions, misconceptions, and post-intervention knowledge quality. Questions were weighted, with scores ranging from one point for recognition/remembering to five points for evaluation and creation, yielding a maximum test score of 40. Students completed the tests within a 45-minute class period. Table 1 provides an overview of the pre-test and post-test questions regarding mixtures and solutions.

**Table 1.** Requirements in the questions on the pre-test and post-test about mixtures and solutions

Question N°	Requests in pre-test	Requests in post-test
1.	Define the mixture.	Circle the mixtures within provided items.
2.	Circle the mixtures within provided items.	Determine whether the offered photos are a mixture or a solution.
3.	Enter the numbers 1, 2, 3 and 4 to display the correct order of mixture preparation and separation of its components (sieving).	Complete the sentences with the provided words or sets of words to make correct statements.
4.	Connect the offered statement with the corresponding illustration (separation of the mixture's components).	Enter the numbers 1, 2, 3 and 4 to display the correct order of mixture preparation and separation of its components (filtration).
5.	Suggest the ingredients and procedure used to make lemonade.	Describe and draw the process of sweet chocolate milk preparation.
6.	Suggest how to separate the components of the mixture (fruit salad) shown in the photos and explain your choice.	Based on the illustrations (different arrangement and density of particles) determine the state of matter.
7.	Sort the given statements about mixtures and solutions according to similarities and differences.	Based on the photo of the mixture (soup), suggest how to separate the solid components from the liquid ones and explain the answer (squeezing).
8.	Classify the provided terms depending on whether they are a mixture or a solution.	Sort the provided mixtures depending on whether their components are in a solid or liquid state.
9.	Based on the photos of the mixture (soil and water/clear juice), evaluate and explain which of them can be separated by squeezing.	Explain why a plastic bottle filled with air can be compressed more easily than one filled with water or sand.
10.	Sort the provided materials according to their solubility (dissolves/does not dissolve) in water and explain your choice.	A mixture or solution should be made from the provided components and sorted into the appropriate column in the table.
11.	Using the provided components, formulate and classify mixtures in a solid state, mixtures in a liquid state, considering easy separation and dissolution of the components.	Describe and draw the procedures for separating the components of the mixture obtained by mixing all provided materials.
12.	Using the provided materials (a hotplate, pot, food coloring, water and a spoon), design and illustrate an experiment proving that the temperature of a liquid affects the rate of dissolution.	Create two meals (a mixture in liquid and a mixture in solid state) and one drink (solution). List the components, describe the process and illustrate it.

Source: Authors research

The sequences within this IBTM were: Differentiation between mixtures and solutions, Mixtures in solid, liquid and gaseous states, Separation of a mixture's constituents, Materials are made of tiny particles (particulate nature of matter), and Mixtures are everywhere around us. Within innovative model sequences, the students, applying the scientific method, defined their research questions, posed hypotheses, performed experiments, and wrote down observations and conclusions. In addition, the students used drawings to show the procedures of the experiments, as well as, the observed physical and chemical changes in substances. The peculiarity of this IBTM was reflected in its close connection with the student's daily life, such as nutrition. Additionally, the home experiments were upgraded with very useful skills: comprehension of the laboratory findings (blood test) and understanding of the percentage of milk ingredients printed on the packaging. The data collected from the achievement tests were analyzed using descriptive statistical methods. Additionally, student responses to individual test items were classified into three categories: correct, incomplete, and incorrect or unanswered.

### 3. RESULTS

The first task in the study was to create a pre-test, used to check students' prior knowledge and to identify misconceptions, and the obtained data was later used to create appropriate IBTM. After the implementation of innovative teaching models, its effects on student achievements were verified via a post-test. Table 2 shows the basic statistical parameters of the pre-test and post-test on mixtures and solutions.

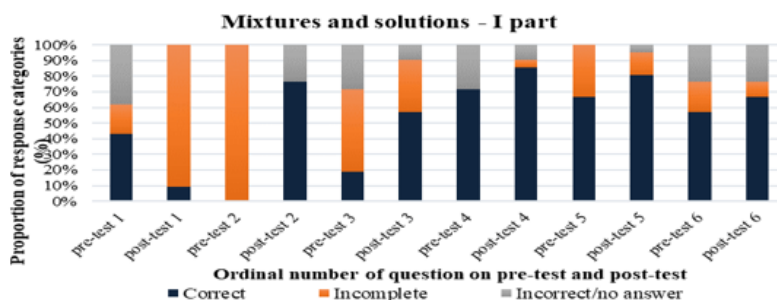
**Table 2.** Basic statistical parameters of the results achieved by the experimental (E) group of students on the pre-test and post-test on mixtures and solutions.

Descriptive statistics	Parameter values	
	Pre-test	Post-test
<i>M</i>	19.80	25.59
<i>SE</i>	1.46	.97
<i>Mdn</i>	21.10	26.60
<i>SD</i>	6.72	8.23
<i>MIn</i>	8.30	10.50
<i>Max</i>	31.20	36.90
<i>SKEW</i>	-.24	-.51
<i>KURT</i>	-.99	-.71

Source: Authors research

The results of the pre-test on mixtures and solutions ( $W = .96$ ,  $p = .47$ ), as well as the post-test ( $W = .93$ ,  $p = .15$ ), displayed normal distribution, as determined by the Shapiro-Wilk test. Data in Table 2 proved that after applying the IBTM, students were more successful and obtained better scores on the post-test ( $M = 25.59$ ,  $SE = .97$ ) in comparison to the pre-test ( $M = 19.80$ ,  $SE = 1.46$ ). Likewise, the results of both tests were shifted towards the higher achievements, as shown by the asymmetry coefficients ( $SKEW1 = -.24$  and  $SKEW2 = -.51$ ) and evenly distributed across the distribution curve ( $KURT1 = -.99$  and  $KURT2 = -.71$ ). Figure 1 shows the distribution of pre-test and post-test results for the first six questions within the three answer categories: correct, incomplete and incorrect/no answer.

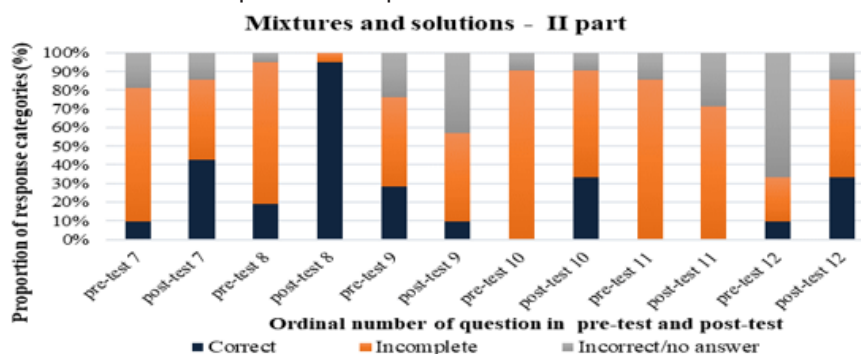
**Figure 1.** Proportion of response categories for the cognitive levels of recognition, understanding and application on the pre-test and post-test on mixtures and solutions



Source: Authors research

Comparing the results achieved on both tests on mixtures and solutions at the lower cognitive levels (Fig 1), it was noticed that regarding the pre-test students were more successful only in the first question, while considering the post-test they had better achievements in all other questions. The distribution of students' achievements on the pre-test and post-test on mixtures and solutions from the seventh to the twelfth question is shown in Figure 2.

**Figure 2.** Proportion of response categories for the cognitive levels of analysis, evaluation and creation on the pre-test and post-test on mixtures and solutions



Source: Authors research

According to the data in Figure 2, students performed better on the two remaining questions (6th and 9th) on the pre-test on mixtures and solutions, but they were more effective in answering the seventh, eighth, tenth and twelfth questions at the higher cognitive levels in the post-test.

#### 4. DISCUSSION

The pre-test and post-test results from the IBTM implementation, as well as an analysis of student performance on individual questions, are presented in the subsequent sections.

An analysis of the 1st pre-test question revealed that about 40% of the students were able to correctly define mixtures. This was also confirmed by data obtained on the third question of the post-test, since about 55% of the students were able to complete the sentences about the properties of mixtures and solutions. However, only 10% of the students successfully identified the examples of mixtures on the post-test (1st question). When this result was compared to the 2nd question of the pre-test, which was of the same type (examples of the mixtures), only slight improvement was observed after the model application. This leads to the conclusion that regardless of the comprehension of the properties of a mixture, there is always an example that seems to be confusing for the students. Data obtained on the 2nd question of the post-test exhibited that about 75% of the students successfully distinguished between a mixture and a solution, likewise for the 4th pre-test question (about 70%), what is probably an outcome of the examples' illustrations. Regarding the steps within the procedure of the mixtures' components separation (sieving – pre-test, filtering – post-test), it was proven that students' independent research activities during the IBTM led to significantly better results achieved on the post-test (20% correct answer to the 3rd question of the pre-test and 86% correct to the 4th post-test question). Interestingly, very solid prior knowledge of the students (around 70% gave correct answers to the 5th question of the pre-test) was only slightly improved by the application of the teaching model (about 80% correct answers to the 5th question of the post-test), demonstrating the importance of learning from everyday experience (lemonade and chocolate milk making at home), as previously described (Na, J. & Song, J., 2014). Although almost 60% of the students successfully described the correct procedure for separating the ingredients of the fruit salad (6th question of the pre-test), only 30% were able to describe the filtering of the soil and water mixture (9th question of the pre-test). However, due to the application of IBTM, most of the students were able to correctly answer a similar question on the post-test (question 7) and describe the appropriate procedure for separating the ingredients of the soup (over 80% of students did it correctly or partially correctly). It is obvious that the procedures of the mixture separation with all the components in a solid state were more understandable to the students than the separation of components being in two different states (liquid and solid). Bearing in mind that the children learned about the particulate structure of the substance for the first time during IBTM, the data obtained on the 6th post-test question (about 65% correct and about 10% partially correct answers), demonstrated that at that age they were capable of understanding the mentioned concept. In addition, the results achieved for question 9 of the post-test, where almost 60% of the students correctly or partially correctly explained the difference in the compressibility of air, water or sand, also speak in support of this claim, since they obviously had to keep in mind the arrangement of particles in the mentioned substances. The request to classify the statements that describe the similarities and differences of mixtures and solutions (question 7 of the pre-test), was proved to be very difficult for many students (only 10% of correct answers), which has already been confirmed as a challenging request for students of younger school age (Allen, 2010: 111-113). The analysis of the obtained results regarding the 8th question in both tests revealed that after the application of IBTM, many of the students' doubts about the classification of the particular solutions and mixtures were resolved. As expected, everyday experience and previous school learning contributed to the fact that students easily recognized water-soluble and water-insoluble materials (10th question of the pre-test), but at the same time they were not able to justify their answers. In contrast, on a similar post-test question (question 10), over 30% of them managed to give a completely correct answer, demonstrating the positive effects of IBTM. Although at first glance it seems unexpected that the achievements on the 11th post-test question were slightly diminished in comparison to the same question of the pre-test, it should be taken into account that the question was more complex. The question implied knowledge of all procedures for the mixture's components separation, as well as the ability to describe them, which is a common problem for students of this age (Bianchi et al., 2021). The results of the 12th question of the post-test (33% correct and around 52% partially correct answers) indicated the importance and high value of the IBTM application. Namely, despite the high demands (no examples were offered), a significant proportion of students was able to independently design, describe and illustrate examples of meals and drinks made of ingredients in liquid and solid state.

## 5. CONCLUSION

An investigation was undertaken to enhance initial natural science instruction, focusing on the chemical concepts of mixtures and solutions and their interpretation through the particulate nature of matter. STEAM + X activities, delivered via an inquiry-based teaching model (IBTM) employing experiential learning, were implemented. Purpose-designed knowledge tests were used to assess the impact of the IBTM on the achievement of 4th-grade elementary school students.

Students, most likely, acquired prior knowledge about the methods for mixtures' preparation through everyday experiences, while IBTM contributed to a better understanding of the procedures for the separation of components in the mixtures, which was mostly unknown before. However, there are still difficulties with the mixture separation when the components are present in different states of matter. Despite the understanding of the properties of mixtures and solutions, as well as the correct classification of the particular examples, the results of the post-test revealed that some examples can always create confusion for the students. On the other hand, the applied IBTM contributed to a better comprehension of the substances' solubility in water. Sorting the properties of studied entities (mixtures and solutions) according to similarities and differences, regardless of the applied model, was too demanding for this student's age, especially in the case when the STEAM+X model was applied only once.

While the IBTM enhanced students' phenomenological understanding of the selected content, it did not fully facilitate interpretation through the particulate nature of matter. This limitation may be attributed to the single application of the model. Additionally, the limited sample size necessitates caution in generalizing the findings. Nonetheless, this study provides valuable preliminary data for future investigations, suggesting the promising potential of implementing similar or modified models on a larger scale and for a longer period of time.

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# LEGAL ORDER AND INTERPRETATION OF LAW: HOW THE INTERPRETATION OF LAW SHAPES STATE POWER

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**Abstract:** Interpretation of law is a central process that shapes the legal order, enables the application of legal norms and affects the functioning of state power. This paper analyses different approaches to the interpretation of law – grammatical, systemic, teleological and practical interpretation – and their significance for achieving legal certainty, fairness and efficiency. Special emphasis is placed on the interdependence of legislative, executive and judicial powers, exploring how the interpretation of laws affects decision-making, policy implementation and dispute resolution. The role of jurisprudence and constitutional law is discussed in detail through examples from the practice of the Constitutional Court of Serbia, which shows how the interpretation of the Constitution can redefine relations between different branches of government and adapt the legal order to contemporary challenges. The paper also includes an analysis of the impact of international law and its harmonization with domestic legislation, emphasizing the complexity of legal hermeneutics in a globalized legal context. Through case studies, such as flexible interpretation of the law during emergency situations (e.g. the COVID-19 pandemic), the importance of adaptability of legal norms to preserve the stability and continuity of the state has been highlighted. Finally, the paper points to the need for a balanced and coherent approach to the interpretation of law in order to ensure the legal order, the trust of citizens and the legitimacy of state authority. Interpretation of law is a key instrument that enables legal norms to remain relevant and applicable in different social, economic and political contexts. The paper especially emphasizes the importance of continuous education of legal experts and the improvement of legal practice in order to ensure consistent and efficient application of law in modern conditions.

**Keywords:** *interpretation of law, legal order, state power, legislative power, jurisprudence, legal hermeneutics, international law, crisis situations, constitutional court.*

**Field:** Social Sciences

## 1. INTRODUCTION

The legal order is the basis of any organized society and its stable functioning. At its core is a set of legal norms whose role is to regulate relations between people, institutions and the state, while ensuring legal certainty, equality before the law and protection of fundamental rights. However, as legal norms themselves are often not precise enough or face changing social, economic and political circumstances, the key process to ensure their proper application is the interpretation of the law. The interpretation of law is not only a technical, but a profoundly legal and social process that shapes the legal order, affects the legitimacy of state institutions, and determines the way in which government functions.

Interpretation of law plays a multifaceted role in modern legal systems. On the one hand, it allows legal norms to be adapted to the real needs of society, while on the other hand, it ensures that basic legal principles such as fairness, equality and legality are respected. Proper interpretation of the law is crucial for preserving legal certainty, as it helps to overcome possible ambiguities, gaps and conflicts in legal texts. Through the process of interpretation, legal norms become applicable in practice, enabling their adaptation to new situations and challenges, from ordinary social changes to exceptional circumstances such as crises and states of emergency.

A particularly important role of the interpretation of law is reflected in its impact on the functioning of state power and the mutual relations between the legislative, executive and judicial branches of government. Each of these branches uses the interpretation of rights as a tool to exercise its functions. The legislature shapes legal norms and public policies through the interpretation of laws; The executive relies on the interpretation of the law in order to properly enforce laws and resolve specific situations; Through jurisprudence and judgments, the judiciary contributes to the standardization of interpretation and the resolution of legal disputes. Courts, especially constitutional courts, play a key role in maintaining the balance between branches of government, often deciding on issues of fundamental importance to the political and legal order of the state.

This paper discusses the theoretical and practical aspects of interpreting law, including different

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methods of interpretation – grammatical, systemic, teleological and practical – and their significance in different contexts. The role of the courts, especially the Constitutional Court, in the processes of interpretation is analyzed, with an emphasis on making decisions that can redefine the relationship between branches of government or influence the adaptation of laws to new social needs. In addition, the role of international law and its impact on national legal systems is explored, as well as the specifics of interpreting legal norms in crisis situations, such as the COVID-19 pandemic, when the interpretation of law becomes a key tool for quick and efficient state action.

The aim of this paper is to explore how the interpretation of law shapes the legal order and affects the functioning of state power, as well as to provide a deeper insight into the importance of legal hermeneutics for preserving the stability of the state and citizens' trust in its legal system. Through theoretical analysis and practical examples, the paper contributes to a better understanding of the interconnectedness of law, politics and society, shedding light on the key role of law interpretation in the development of modern legal systems.

## 2. LEGAL ORDER AND INTERPRETATION OF LAW: BASIC CONCEPTS AND SIGNIFICANCE

The legal order is the basis of any society that strives to establish order, legal certainty and equality. It includes a set of legal norms that regulate relations between individuals, organizations and state institutions, ensuring the compliance of social relations with legal principles. However, the legal order is not a static system; its functioning and application depend on the interpretation of legal norms, which allows them to be adaptable and effective in changing circumstances.

Law interpretation, also known as legal hermeneutics, is the process of analyzing, explaining, and applying legal norms in order to achieve their full understanding and proper application in practice. Without adequate interpretation, laws would remain vague or unenforceable, which would jeopardize legal certainty and citizens' trust in the legal system. Therefore, the interpretation of law is not only a technical, but also a social and political process that directly affects the functioning of the state and the achievement of its basic goals.

A legal order is defined as a set of norms by which the state regulates social relations in accordance with legal rules and principles. Its significance is reflected in several basic functions:

- Regulation of social relations: The legal order allows the regulation of relations in society, preventing conflicts and establishing rules of conduct.
- Legal certainty: Clearly defined and consistently applied norms enable citizens to anticipate the legal consequences of their actions.
- Preservation of order and stability: The legal order ensures that all social, economic, and political activities function in accordance with the law.

However, the legal order cannot function autonomously without a process of interpreting the law, which allows it to be adapted to specific circumstances and new challenges.

Law interpretation is a process that involves identifying the meaning of legal norms, their purpose and the way in which they are applied in specific cases. This process is not uniform; different approaches to the interpretation of law have been developed, each of which has its own application and significance depending on the legal context. The main methods of interpretation include:

- Grammatical Interpretation: It relies on the literal meaning of words in legal norms. It is used when the text of the norm is clear and precise.
- Systemic interpretation: Studies a norm within a broader legal system, taking into account its relationship to other norms.
- Teleological interpretation: Focuses on the purpose and objective of the norm, seeking to understand the legislative will and the broader social context.
- Practical interpretation: It is aimed at the application of legal norms in everyday life, taking into account the specifics of a particular case.

The interpretation of the law plays an important role in preserving legal certainty and fairness. Through the correct interpretation of laws, it is possible to apply them in a way that corresponds to the intentions of the legislator, but also to the needs of modern society.

- The process of interpreting the law has far-reaching consequences for the legal order and the functioning of the state. The way in which the law is interpreted affects:
  - Legal principles and standards: The interpretation of law contributes to the development of legal principles and the standardization of the application of laws.
  - Relations between branches of government: The interpretation of law determines the limits of the powers of the legislative, executive, and judicial branches.

- Functioning of the legal system: The proper application of legal norms depends on their clear interpretation.

The interpretation of law also allows the legal order to adapt to new social, economic and technological challenges. In this context, the role of jurisprudence is particularly emphasized, which provides guidelines for further application and development of the legal system through judgments.

The legal order and the interpretation of law are inextricably linked. While the legal order provides the basis for the functioning of society, the interpretation of law enables its application, adaptation and improvement, thus ensuring stability, legal certainty and citizens' trust in state institutions. The continuation of the paper deals with a deeper analysis of different methods of interpreting the law and their impact on the state government and society as a whole.

### 3. MATERIALS AND METHODS

This research is based on the analysis of theoretical and practical aspects of the interpretation of law and its impact on the functioning of state power. The collected data include primary sources, such as the Constitution of the Republic of Serbia, laws and legal acts, as well as secondary sources, including legal literature, scientific papers and commentaries relevant to legal hermeneutics. In addition, the case law of the Constitutional Court of Serbia is analyzed in order to review the role of the interpretation of law in shaping the legal order. Comparative data related to the methods of interpretation of law in the legal systems of other countries were also used in the research.

The methodological approach is based on a combination of qualitative and quantitative methods. A qualitative analysis of legal norms and jurisprudence has enabled a deeper understanding of legal principles and their practical application. The comparative method was used to compare the interpretation of law in different legal systems, with a focus on countries with similar legal traditions and European standards. In addition, through the analysis of specific cases from the practice of the Constitutional Court of Serbia and international courts, the effects of different methods of interpreting the right on the legal order were explored. The theoretical analysis of legal doctrine has contributed to a conceptual understanding of the basic concepts and principles of legal hermeneutics.

The data was collected from legal databases, archives of court decisions and legal publications. Electronic sources, such as the EUR-Lex database and the database of the Constitutional Court of Serbia, provided material for the analysis of legal acts and court decisions. The analysis was carried out systematically, using software tools for legal analysis, which identified patterns of interpretation and legal consequences of them. The highest ethical standards were respected in the processing of data, and all sources were precisely cited to ensure the transparency of the research.

The combination of theoretical insights, analysis of case law and a comparative approach provided a comprehensive basis for examining how the interpretation of law affects state authority and the legal order. This methodological foundation allows for a reliable analysis of the results and conclusions that follow in the following chapters.

### 4. RESULTS

The results of the research provide insight into the key aspects of the interpretation of law and its impact on the state authorities, relying on concrete examples and statistical data. Through the analysis of the case law of the Constitutional Court of Serbia, as well as a comparative study of other legal systems, the main patterns of interpretation and their practical implications have been identified.

One of the cases analysed by the Constitutional Court of Serbia concerns the challenge to the constitutionality of the 2020 Law on the State of Emergency, adopted during the COVID-19 pandemic. The Constitutional Court applied a systemic and teleological interpretation to assess the compliance of the measures with the Constitution. In its ruling, the Court concluded that the measures were proportionate and necessary, given the specific circumstances, but stressed the need for a temporal limitation of such regulations. This is an example of how the interpretation of the law makes it possible to maintain a balance between the executive power and the protection of citizens' fundamental rights. Statistically, in the period 2020-2022, the Constitutional Court of Serbia considered 47 cases related to the state of emergency, of which in 65% of cases it was determined that the measures were in accordance with the Constitution.

The second example concerns the harmonization of domestic legislation with international law. An analysis of the 2019 judgment of the Constitutional Court of Serbia, which dealt with the implementation of the European Convention on Human Rights, shows that the Court used a teleological interpretation to adapt domestic law to international standards. In particular, in a case concerning the right of the child to

education, the Court held that domestic law must be interpreted in accordance with Art. 2 of Protocol 1 to the Convention, which resulted in direct amendments to certain legal provisions. The data show that in the last ten years, the Constitutional Court of Serbia has used international standards in 32% of its decisions, most of which relate to human rights and fundamental freedoms.

The research also included an analysis of the interpretation of law in legislative processes. In the period 2015-2023, the National Assembly of the Republic of Serbia, according to the data available in public reports, adopted 1,276 laws, of which 15% were subject to subsequent analysis due to ambiguities in implementation. These statistics point to the need for more careful interpretation during the legislative process, which would reduce legal uncertainty and allow for a more effective application of norms.

Another concrete example comes from the protection of minority rights. In a case concerning the right of national minorities to use language, the Constitutional Court in 2021 used a systematic and historical interpretation of the law, referring to the Constitution, the Law on National Minorities and international agreements. The decision confirmed the right of national minorities to bilingual signs in municipalities where they make up a significant part of the population, which directly contributed to the improvement of the rights of minority communities. Statistics show that in 74% of such cases, judgments are made in favor of minority rights, which indicates a positive trend in the protection of fundamental freedoms.

**Table 1.** Results of the interpretation of law in key areas

<b>The Field of Interpretation of Law</b>	<b>Case Number/Act</b>	<b>Methods of interpretation</b>	<b>Results</b>
State of emergency (COVID-19)	47 items	Systemic, teleological	65% in accordance with the Constitution.
Compliance with international law	32% of verdicts	<u>Teleološko</u>	Adaptation of the law to international standards
Legislative processes	1,276 Acts (2015-2023)	Grammarly, systemic	15% of the law has been revised due to ambiguity
Protection of minority rights	74% in favor of minorities.	Systemic, historical	Minority rights promoted in most cases

Source: Author, based on multiple sources

In conclusion, the results of the research confirm that the interpretation of law plays a key role in preserving legal certainty, harmonizing domestic legislation with international norms and balancing relations between branches of government. Statistics and concrete examples from practice shed light on the importance of the correct interpretation of legal norms in the improvement of the legal order and the state system.

## 5. DISCUSSION

The results of the research indicate the key role of the interpretation of law in preserving the legal order and improving the functioning of state power. The analysis of case law, legislative processes and harmonization with international law reveals how different approaches to interpreting law enable the adaptation of legal norms to contemporary social needs and challenges.

One of the most important findings of the research relates to the interpretation of law during emergencies, such as the COVID-19 pandemic. Using a systemic and teleological interpretation, the Constitutional Court of Serbia has ensured a balance between the necessary measures to protect public health and respect for fundamental human rights. Statistics, which show that 65% of measures are assessed as constitutional, confirm the importance of flexible interpretation of the law in crisis situations. However, the discussion can expand to the question of the limits of the executive branch's powers during states of emergency, given that 35% of the measures were challenged due to potential violations of constitutional principles. This points to the need for more precise legal frameworks that will define in advance the limits of action in similar situations.

The role of international law in national legal systems is also highlighted through results showing that 32% of judgments of the Constitutional Court of Serbia rely on international norms. Teleological interpretation allows courts to adapt domestic laws to international standards, which is particularly important in the area of human rights and freedoms. However, this raises the question of the challenges in implementing international legal standards, especially in countries with complex legal and political contexts. The discussion in this segment emphasizes the need to improve legal education and strengthen the capacity of courts to apply international norms.

Legislative processes, while crucial to the legal order, face challenges in terms of clarity and

consistency of legal norms. Statistics showing that 15% of laws have been revised due to ambiguities indicate shortcomings in the formulation phase of the law. This highlights the importance of thorough legal analysis and consultation during the legislative process in order to reduce the risk of legal uncertainty and disputes in practice.

The protection of minority rights provides a positive example of how interpretation of the law can contribute to social cohesion and inclusion. The results, which show that in 74% of cases judgments were made in favor of minority rights, shed light on the importance of systemic and historical interpretation in preserving the rights of vulnerable groups. However, this also opens up a discussion about the challenges of implementing court decisions at the local level, where resistance or limited resources can make it difficult to enforce court rulings.

Through the discussion of these results, the conclusion is that a successful interpretation of law requires a balance between formal accuracy and flexibility in application. Although legal hermeneutics allow legal norms to be adapted to changing circumstances, clearly defined legal frameworks and the improvement of the legal system remain crucial for preserving legal certainty and stability of the state. Further research in this area can contribute to the development of concrete recommendations for improving the process of interpreting the law and its contribution to a more efficient functioning of the legal order.

## 6. CONCLUSION

Interpretation of law is a key process that allows the adaptation of legal norms to social needs and the preservation of legal certainty. This research has shown that different approaches to the interpretation of law – grammatical, systemic, teleological and historical – play a significant role in shaping the legal order and the functioning of state power. The analysis of specific examples, such as the case law of the Constitutional Court of Serbia during the state of emergency, the harmonization of domestic legislation with international law and the protection of minority rights, shed light on how the interpretation of law can contribute to maintaining the balance between different branches of government and improving social standards.

The results of the research indicate that courts, especially constitutional courts, through the interpretation of law, play a key role in ensuring the constitutionality and compliance of laws with basic legal principles. At the same time, statistics showing that 15% of laws have been revised due to ambiguities underline the importance of a more careful legislative process in order to improve the understanding and implementation of legal norms. The role of international law in national legal systems has also confirmed the need for further development of legal education and greater harmonization with international standards.

One of the most important findings of this paper refers to the flexibility and adaptability of the interpretation of law in crisis situations. The experience of the COVID-19 pandemic has shown how the correct interpretation of legal norms can enable rapid decision-making that is in line with constitutional principles, while at the same time ensuring basic standards of human rights protection.

In conclusion, the interpretation of the law is not just a technical process, but a key element that directly affects the legitimacy, efficiency and stability of the legal order and state authority. This research contributes to a better understanding of legal hermeneutics as a fundamental tool for improving the legal system. Further development of legal norms, harmonization of legislative processes with modern challenges and continuous education of legal experts are the basis for improving the legal order and ensuring legal certainty.

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# FROM KNOWLEDGE TO INNOVATION: A REVIEW OF THE FACTORS, COMPONENTS, AND IMPACT OF ABSORPTIVE CAPACITY

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**Abstract:** This paper aims to build on existing research on absorptive capacity by exploring its key factors, components, outcomes, advantages, and constraints. Absorptive capacity, defined as an organization’s ability to acquire, assimilate, transform, and utilize external knowledge, plays a crucial role in fostering innovation and sustaining competitive advantage. As a dynamic capability, absorptive capacity enables organizations to continuously adapt to changing environments by integrating and leveraging new knowledge. The paper examines the factors that shape absorptive capacity, including managerial influences, intra-organizational factors, inter-organizational networks, and prior knowledge. It also distinguishes between potential and realized absorptive capacity, highlighting their complementary roles in leveraging external knowledge for business success. Furthermore, the study discusses the outcomes of absorptive capacity, such as innovation, improved organizational performance, and competitive advantage. While absorptive capacity offers significant benefits, its implementation demands substantial resources, and organizations must strike a balance between acquiring knowledge and effectively applying it to avoid information overload. Building on previous academic contributions, this paper offers a comprehensive understanding of absorptive capacity and its managerial implications. Future research should further investigate the interplay between absorptive capacity components and their sector-specific implications.

**Keywords:** *absorptive capacity, innovation, knowledge, dynamical capability, competitive advantage.*

**Field:** Social Sciences

## 1. INTRODUCTION

Knowledge is a critical resource for organizations seeking to gain a competitive advantage. In today’s era of rapid technological change and a highly dynamic environment, adapting to market demands is essential. To stay ahead, organizations must look beyond internal resources and actively acquire external knowledge, which is key to driving innovation and improving business performance. Cohen and Levinthal (1990) introduced the concept of absorptive capacity, defining it as “a firm’s ability to recognize the value of new external information, assimilate it, and apply it for business purposes.” This theory highlights a company’s ability to leverage external knowledge, positioning absorptive capacity as a key determinant of innovation by shaping how firms acquire and utilize knowledge from their environment. The extent to which external knowledge adds value depends on an organization’s internal resources and capabilities. To maximize this potential, firms must cultivate a learning culture and establish a robust infrastructure that facilitates knowledge integration. Additionally, managerial skills and leadership styles play an important role in fostering an environment that prioritizes knowledge sharing and continuous learning.

Zahra and George (2002) later reconceptualized absorptive capacity as “a set of organizational routines and processes through which firms acquire, assimilate, transform, and exploit knowledge to develop a dynamic organizational capability.” Their framework has been widely accepted and serves as a fundamental reference for researchers. The dynamic nature of absorptive capacity is well-documented in the literature (Zou et al., 2016). Absorptive capacity is considered a dynamic capability because it enables organizations to continuously sense, absorb, and transform knowledge in response to external changes. In other words, absorptive capacity allows firms to continuously learn, innovate, and enhance their competitive position over time. As absorptive capacity evolves, firms gain experience and refine their knowledge absorption practices. Consequently, organizations must continuously adapt their strategies to effectively leverage external knowledge and sustain a competitive advantage. Further theoretical and empirical studies have explored absorptive capacity as a process model, analyzing its key mechanisms, influencing factors, and outcomes to deepen understanding of the concept.

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## 2. FACTORS OF ABSORPTIVE CAPACITY

Absorptive capacity is shaped by various internal and external factors that determine how effectively an organization acquires, assimilates, transforms, and utilizes knowledge. These factors influence the organization's ability to recognize valuable external knowledge and integrate it into its innovation processes. While some factors stem from internal structures and management practices, others arise from external relationships and prior knowledge accumulated over time. In general, the factors affecting absorptive capacity can be categorized into four groups (Volberda et al., 2010): managerial factors, intra-organizational factors, inter-organizational factors, and prior related knowledge.

Managerial factors that influence absorptive capacity include managerial skills, incentives, and leadership style. Managerial skills can synthesize and apply knowledge and can be influenced and limited by the manager's cognition and dominant logic. The education and motivation of individuals play a critical role in acquiring external knowledge. Managers must improve learning by encouraging employee skill development and foster the motivation of employees to enhance their capacity for knowledge absorption (Rezaei-Zadeh & Darwish, 2016). Aligning incentives with knowledge processes ensures that employees are motivated to engage in knowledge-sharing activities and contribute to the organization's learning culture. Leadership style also plays a pivotal role, as leaders who emphasize collaboration and openness to new ideas create an environment conducive to knowledge acquisition. A leadership approach that integrates both individual and organizational knowledge goals fosters a more effective and dynamic absorptive capacity.

Intra-organizational factors play a significant role in shaping an organization's absorptive capacity. The organizational structure impacts knowledge assimilation, as different structural designs can either facilitate or hinder the flow of external knowledge. For example, matrix structures, which emphasize cross-functional collaboration, tend to enhance knowledge exchange compared to more traditional divisional or functional structures. Effective communication systems help improve the sharing of knowledge across different units and promote the assimilation of new information. The size of the firm and its informal networks further influence absorptive capacity, as larger firms with flexible communication channels are better equipped to absorb external knowledge. Finally, a receptive, learning-oriented organizational culture is strongly associated with absorptive capacity (Akkartal et al., 2023), fostering an environment where knowledge sharing is a priority and employees are constantly adapting new ideas to improve organizational performance.

Inter-organizational factors, including business collaboration, networks, informal ties, and localized spillovers, significantly influence absorptive capacity. Acquiring knowledge through interactions and collaborations with suppliers, customers, universities, research institutes, intermediaries, and other entities is essential for enhancing an organization's ability to innovate and improve performance. Collaboration with diverse partners, such as strategic alliances and joint ventures, further enriches a company's knowledge base and strengthens its absorptive capacity. Informal social ties, including communities of practice, facilitate the exchange of valuable insights and experiences, fostering knowledge sharing. Both formal and informal external relationships create networks that enable organizations to access, assimilate, and exploit external knowledge more effectively. Additionally, geographic proximity to key sources of knowledge can foster localized knowledge spillovers, allowing companies operating in knowledge-rich environments to innovate more rapidly than competitors in less dynamic regions (Breschi & Lissoni, 2001).

Prior related knowledge encompasses knowledge stocks, breadth, and depth. When an organization's existing knowledge is sufficiently similar to external knowledge, it enhances the firm's ability to recognize, assimilate, and apply new information effectively. The breadth of knowledge, which represents diversity across multiple domains (e.g., customers, market segments, and technology), enriches the organization's learning potential by facilitating connections between different knowledge areas. Depth of knowledge, reflecting expertise in key areas (Yang et al., 2017), strengthens absorptive capacity by enabling a deeper understanding and integration of complex information. Knowledge embedded in organizational routines, technologies, and employees becomes part of the firm's knowledge base, reinforcing its ability to absorb and utilize external insights. However, absorptive capacity decreases when external knowledge is highly complex, novel, or misaligned with the organization's existing knowledge base, making assimilation and application more challenging.

### 3. COMPONENTS AND DIMENSIONS OF ABSORPTIVE CAPACITY

Absorptive capacity is composed of potential absorptive capacity and realized absorptive capacity, each serving a distinct but complementary role. Potential absorptive capacity refers to an organization's ability to acquire and assimilate external knowledge, laying the groundwork for future learning and innovation. In contrast, realized absorptive capacity involves the transformation and exploitation of acquired knowledge, enabling firms to apply it for commercial or strategic benefits. The key difference between them lies in the transition from merely acquiring knowledge to effectively utilizing it in business processes and decision-making. While potential absorptive capacity determines a firm's readiness to absorb new information, realized absorptive capacity reflects the organization's ability to convert that knowledge into tangible outcomes. A strong absorptive capacity requires both elements to work together, ensuring that knowledge is not only gathered but also successfully leveraged for competitive advantage.

The construct of potential absorptive capacity encompasses two dimensions: knowledge acquisition and knowledge assimilation. Together, these processes ensure that newly acquired information is recognized and transformed into meaningful insights that can be leveraged for strategic decision-making and competitive advantage.

Knowledge acquisition enables organizations to identify, access, and gather valuable external information that enhances their innovation capabilities and competitive advantage. Organizations engage in external networks, leveraging both formal channels (such as partnerships and research collaborations) and informal interactions to acquire relevant knowledge. The recognition of external knowledge depends on a firm's prior knowledge base, as well as its ability to scan and interpret industry trends and technological advancements. A proactive technological orientation, including the establishment of environmental scanning mechanisms to identify external technology sources, along with a strong market orientation focused on new customers and emerging markets, are among the key prerequisites for recognizing valuable external knowledge (Lichtenthaler, 2016). Once external knowledge is identified, it must be effectively transferred to the appropriate units or teams within the organization to maximize its value.

Knowledge assimilation involves the interpretation, analysis, and integration of newly acquired external knowledge into the organization's existing knowledge base. This process ensures that external knowledge is not only recognized but also understood and effectively aligned with internal operations and strategic objectives. However, knowledge assimilation often lags due to contextual differences, complexity, or misalignment between the external knowledge and the organization's current capabilities. Knowledge assimilation depends on individuals' ability to understand new external information and connect it with the organization's existing knowledge (Chauvet, 2014). Since external knowledge is frequently context-specific, employees may face challenges in fully comprehending or applying it without additional adaptation, training, or knowledge-sharing efforts. Successful assimilation requires internal learning initiatives, collaboration among employees, and mechanisms to refine and contextualize new information for practical use.

The construct of realized absorptive capacity consists of two dimensions: knowledge transformation and knowledge exploitation. Together, these dimensions enable organizations to refine, integrate, and apply newly acquired knowledge, ensuring its effective utilization for innovation, problem-solving, and competitive advantage.

Knowledge transformation refers to the process by which organizations refine, adapt, and integrate newly acquired knowledge with existing knowledge to create a more coherent and applicable knowledge base. Knowledge transformation involves adjusting existing knowledge schemas to incorporate new information that may conflict with current understanding (Graham & Moore, 2021). This process requires organizations to have mechanisms for restructuring and reinterpreting knowledge to align it with internal operations, strategic goals, and industry demands. Through transformation, knowledge is modified to ensure it is relevant and useful, bridging gaps between external insights and internal capabilities. Organizations recognize new opportunities and potential innovations by effectively synthesizing external and internal knowledge. Indicators of success in knowledge transformation include improved decision-making, enhanced adaptability, and the seamless integration of new knowledge into business processes.

Knowledge exploitation refers to the process by which organizations apply transformed knowledge to improve their products, services, and overall performance. This process enables organizations to leverage knowledge for competitive advantage by driving innovation and enhancing operational efficiencies. Knowledge exploitation is crucial for fostering productivity, efficiency, and value creation, ensuring that knowledge is consistently applied across various organizational functions. As organizations continue to apply and optimize their knowledge assets, the systematic use of routines and best practices becomes increasingly refined. Organizations that excel in knowledge exploitation typically feature strong

learning cultures, effective leadership, and well-established processes for integrating new insights. Since knowledge exploitation is focused on achieving short-term effectiveness, companies must balance investments in knowledge exploitation and exploration capabilities (Agnihotri et al., 2024).

To remain competitive, companies must focus on both potential and realized absorptive capacity, ensuring they can effectively acquire, assimilate, and apply external knowledge. Companies that prioritize potential absorptive capacity excel at identifying and understanding technical challenges but may struggle to translate that knowledge into practical applications (Baker et al., 2003). In contrast, organizations that focus only on realized absorptive capacity can generate innovations based on existing knowledge but often fail to integrate new external insights that could enhance their long-term adaptability. Sustainable competitive advantage is achieved when firms develop both high potential absorptive capacity—enabling them to acquire and assimilate valuable external knowledge—and high actual absorptive capacity—allowing them to innovate and strategically implement that knowledge. This dual capability enables companies to remain agile in dynamic environments, continuously improving and adapting their strategies to market demands. By balancing these two dimensions, organizations can maximize their knowledge resources, foster continuous innovation, and maintain long-term success.

#### **4. OUTCOMES OF THE ABSORPTIVE CAPACITY**

Among the key outcomes of absorptive capacity are competitive advantage, innovation, and improved performance (Volberda et al., 2010, Zou et al., 2018). According to resource-based theory, the knowledge created by firms is a critical factor for survival and adaptation to market changes. As a dynamic capability, absorptive capacity enables firms to gain a competitive advantage by strategically acquiring, assimilating, transforming, and exploiting knowledge to better understand market trends. Furthermore, firms must effectively channel this acquired knowledge into products and processes. Innovation and strategic flexibility are essential components of competitive advantage. The transformation and exploitation capabilities that come with strong absorptive capacity directly impact organizational performance by stimulating product and process innovation.

**Competitive Advantage** - absorptive capacity allows companies to acquire and integrate external knowledge, enabling them to anticipate market trends and make informed strategic decisions. By continuously updating their knowledge base, organizations can develop unique capabilities that are difficult for competitors to replicate. This knowledge-driven agility enhances differentiation, cost efficiency, or both, strengthening the company's position in the market. Moreover, companies with strong absorptive capacity can better leverage partnerships, alliances, and industry networks to maintain their competitive edge.

**Innovation** - companies that effectively absorb new knowledge can translate it into innovative products, services, and processes that differentiate them from competitors. The ability to assimilate and exploit knowledge fosters a culture of continuous improvement and experimentation, supporting both radical and incremental innovation. Furthermore, absorptive capacity increases strategic flexibility, enabling companies to pivot in response to technological advances and market disruptions. By channeling knowledge into research, development, and creative problem-solving, organizations can sustain long-term innovation cycles and maintain industry leadership.

**Improved performance** - companies with high absorptive capacity improve their operational efficiency and adaptability, resulting in better financial and market performance. The transformation and exploitation of knowledge lead to lower costs, improved quality, and faster time-to-market for new products and services. Additionally, companies that successfully innovate through absorptive capacity can capture new customer segments and generate sustainable revenue streams. Over time, these advantages contribute to increased profitability, resilience to competitive pressures, and long-term business sustainability.

#### **5. ADVANTAGES AND LIMITATIONS OF ABSORPTIVE CAPACITY**

Absorptive capacity plays a crucial role in helping organizations adapt to environmental changes and explore new opportunities, thereby enhancing their innovative potential. Companies that effectively adopt external knowledge are better positioned to anticipate technological trends and capitalize on market opportunities. By assimilating external insights, these organizations gain a deeper understanding of customer needs and the strengths and weaknesses of competitors. However, knowledge within an organization is often unevenly distributed, making it essential to facilitate the efficient exchange of information across individuals and units. Additionally, absorptive capacity serves as a key mechanism for knowledge transfer in inter-organizational innovation activities.

Absorptive capacity offers numerous advantages, including the ability to recognize valuable external knowledge and facilitate its efficient transfer and application (Flatten et al., 2011). By integrating external knowledge and improving internal knowledge exchange, organizations can strengthen their capacity for innovation and sustain a competitive edge. The theory of absorptive capacity also explains why some companies struggle with innovation—due to their inability to absorb and effectively exploit new knowledge (Smith, 2015). Moreover, absorptive capacity helps organizations expand their knowledge base, leading to enhanced technological development performance. It fosters a culture of continuous learning, flexibility, and adaptability, enabling companies to develop innovative strategies and implement new business models (Müller et al., 2021). In an era of globalization, absorptive capacity has become increasingly vital for organizations striving to remain competitive in dynamic, rapidly evolving markets.

Despite its advantages, absorptive capacity also presents challenges that can limit a company's ability to fully leverage it. Implementing absorptive capacity requires substantial resources and capabilities (Bedoya-Villa et al., 2023), including but not limited to skilled personnel, investments in knowledge management systems, technological infrastructure, a supportive organizational culture, collaboration with external networks, and sufficient time for individuals and teams to absorb, interpret, and apply external knowledge. Additionally, absorptive capacity relies heavily on an existing knowledge base, making it difficult for companies to pivot to new knowledge domains if they lack prior expertise in those areas. Overemphasizing absorptive capacity can also lead to information overload, diverting attention from core tasks. To maximize long-term adaptability and competitive advantage, organizations must strike a balance between acquiring knowledge and fostering innovation while mitigating these potential drawbacks.

## 6. CONCLUSIONS

For three and a half decades, absorptive capacity has been the bedrock of theories of innovation and is the key dynamic capability of an organization. According to the model provided by Zahra and George (2002), it consists of two distinct but interconnected components: potential and realized absorptive capacity. The former relates to how organizations acquire and assimilate knowledge, while the latter concerns how they transform and exploit it. Organizations must consider the key factors influencing absorptive capacity – managerial, intraorganizational, interorganizational, and prior related knowledge – as well as its outcomes, including competitive advantage, innovation, and improved performance. Additionally, they must understand both its advantages and limitations. By integrating valuable external insights with internal knowledge, companies enhance adaptability, improve performance, and sustain long-term growth. However, effective implementation requires significant resources, strong managerial support, and a learning-oriented culture, while challenges such as information overload, uneven knowledge distribution, and reliance on prior knowledge must be carefully managed. Ultimately, organizations that successfully develop absorptive capacity can drive innovation, maintain resilience, and secure a sustainable competitive advantage in an increasingly complex business environment.

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# ENERGY INSECURITY AND ITS HEALTH IMPACTS: A MULTI-DIMENSIONAL ANALYSIS

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**Abstract:** Energy insecurity, the lack of reliable, affordable, and safe energy, represents a growing but underexamined determinant of public health. This paper offers a multi-dimensional analysis of how energy insecurity affects health outcomes through interrelated physical, economic, and behavioral pathways. Drawing on interdisciplinary theoretical frameworks and a narrative synthesis of literature from both high-income and low- and middle-income countries, the study reveals that energy insecurity contributes to a wide spectrum of adverse outcomes, including respiratory illnesses, mental health issues, increased hospitalization rates, and social isolation. These impacts disproportionately affect vulnerable populations, reinforcing structural inequalities in health and energy access. By applying a systems thinking perspective, the paper highlights the cyclical nature of energy-related deprivation and its entanglement with housing conditions, economic hardship, and psychosocial stress. The findings underscore the need to reframe energy access as a critical component of health equity and advocate for integrated, justice-centered policies that bridge the divide between the energy and health sectors. The study concludes by calling for greater empirical research, particularly in underrepresented regions, and the incorporation of health-focused strategies into energy transition planning.

**Keywords:** *energy insecurity, health, environmental justice.*

**Field:** Social sciences; Law.

## 1. INTRODUCTION

The global energy landscape is undergoing a profound transformation marked by shifting geopolitical dynamics, increasing reliance on renewable resources, and heightened awareness of climate-related risks. In the 21st century, access to reliable, affordable, and clean energy is increasingly recognized as a critical determinant of health and human development. While much of the discourse around energy security focuses on economic and environmental dimensions, its implications for human health are often underexplored. Conversely, energy insecurity, the lack of reliable access to sufficient, affordable, and clean energy, poses significant direct and indirect threats to health, ranging from respiratory diseases caused by indoor air pollution to broader social vulnerabilities exacerbated by power instability. Despite global advances in energy technologies and infrastructure, millions of people around the world continue to live in conditions of energy insecurity, a state defined by insufficient, unstable, or unaffordable energy access. This condition is not only a marker of social and economic deprivation but also a potent contributor to a wide range of health challenges. The link between energy and health is complex, multifactorial, and mediated by both direct and indirect mechanisms, many of which remain underexplored in mainstream health and energy policy discourse.

At the household level, energy insecurity compels families to rely on polluting and unsafe fuels such as wood, charcoal, coal, or kerosene. The resulting indoor air pollution is a leading cause of respiratory infections, chronic obstructive pulmonary disease, and cardiovascular problems, particularly in women and children. Inadequate energy access also disrupts the provision of essential health services. Hospitals and clinics in energy-insecure regions frequently experience power outages that jeopardize emergency care, refrigeration of vaccines, surgical procedures, and the operation of life-saving equipment. Furthermore, energy poverty exacerbates social stress, erodes community resilience, and contributes to mental health problems, especially among vulnerable groups facing compounding socioeconomic pressures. Importantly, the impacts of energy insecurity are unevenly distributed. Low-income populations marginalized ethnic groups, displaced persons, and residents of informal settlements bear the heaviest burden. Gender dynamics further compound these disparities, as women and girls often face disproportionate exposure to hazardous energy environments due to domestic roles in cooking and caregiving. In many contexts, energy insecurity also reinforces structural inequities in access to education, employment, and healthcare, perpetuating a cycle of disadvantages.

This paper presents a multi-dimensional analysis of energy insecurity and its health consequences. Drawing on theoretical insights from environmental health, social epidemiology, and systems thinking, it

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explores the interdependent pathways through which energy insecurity affects physical, mental, and social well-being. It also highlights feedback loops and long-term effects, including how poor health reduces household productivity and limits the capacity to invest in cleaner energy sources, creating a vicious cycle.

## 2. THEORETICAL FRAMEWORK

Access to energy services is widely recognized as a fundamental prerequisite for human well-being. However, energy insecurity, defined as the lack of consistent, affordable, and clean access to energy, serves as a crucial mediating factor linking health, development, sustainability, and prosperity (Ang et al., 2015). Energy insecurity exists at both macro and micro levels. At the system level, it manifests when national or regional infrastructures fail to provide reliable and sustainable energy access. At the household level, it becomes evident through inadequate service delivery, unaffordable energy costs, or reliance on unsafe fuel sources, all of which have profound consequences for physical and mental health. Although some energy systems appear secure at the national level, this macro-level security often obscures stark inequities in energy distribution. Many communities and households, particularly those in low-income settings, experience persistent energy deprivation despite living in seemingly well-resourced countries. The term “fuel poverty” has historically been used to describe this condition, but more recent literature favors “energy insecurity” for its broader analytical scope, encompassing not only affordability but also physical infrastructure and behavioral adaptation strategies (Hernández, 2016). Drawing on ecological health, social determinants of health, systems thinking and environmental justice, key conceptual frameworks posit energy insecurity as a complex, context-dependent phenomenon with cascading effects on physical, mental and social well-being.

### 2.1. *Energy Insecurity as a Social Determinant of Health*

Energy insecurity functions as a social determinant of health, mediating the relationship between socioeconomic status and a wide array of health outcomes (Marmot & Wilkinson, 2005; Marmot et al., 2008). Studies have shown that in low-income neighborhoods, energy insecurity is associated with respiratory illnesses, depression, asthma, sleep disturbances, and increased hospitalization rates among children, particularly during extreme weather seasons (Cook et al., 2008; Hernández & Siegel, 2019). Medical vulnerability, stemming from chronic conditions such as asthma, diabetes, or disabilities, has been shown not to protect against, but to exacerbate the scope of energy insecurity (Hernández, 2016). He outlines three dimensions of energy insecurity: physical, including inadequate housing and poor infrastructure; economic, referring to the disproportionate financial burden of energy costs on low-income households; and behavioral, involving coping mechanisms such as reducing energy use, rationing heat, or using dangerous alternatives. Behavioral energy insecurity can include both positive strategies, like resourcefulness and energy conservation, and negative ones, such as burning hazardous materials indoors, decisions that may place health, safety, and household stability at risk.

### 2.2. *Environmental Justice and Energy Equity*

The concept of energy justice provides an overarching normative framework for understanding how energy insecurity affects health and well-being across populations. Energy justice addresses the distributive, procedural, and recognitional dimensions of inequality in energy systems (Sovacool et al., 2016). Distributive injustice is particularly evident in the existence of “sacrifice zones”, regions that bear the environmental and health burdens of fossil fuel extraction and combustion, while receiving few direct benefits (Healy & Barry, 2017). The notion that some communities disproportionately suffer the health and ecological consequences of energy systems reflects a critical ethical and political failure in the design of modern energy policy. Moreover, energy insecurity is increasingly recognized as a barrier to human development in low- and middle-income countries. A paradox emerges in resource-rich nations, where the abundance of natural assets such as oil does not necessarily translate into development gains, a phenomenon known as the “resource curse” (Auty, 2007). These nations often suffer from commodity price volatility, governance deficits, and external influence over extraction industries, all of which impede their ability to invest in domestic energy security (Busse & Gröning, 2013).

### 2.3. *Systems Thinking and Complex Interactions*

We adopts a systems thinking perspective to explore the nonlinear and dynamic interactions between energy insecurity and health. Rather than viewing energy as an isolated input, this approach recognizes it as embedded within a broader social-ecological system characterized by feedback loops, time delays, and emergent properties (Meadows, 2008). For instance, poor health may reduce economic productivity, limiting household income and constraining the ability to purchase energy, thereby perpetuating a self-reinforcing cycle of deprivation.

Systems thinking also emphasizes the interdependence of sectors: health outcomes are shaped

not only by healthcare delivery but also by energy policy, urban planning, and climate resilience strategies. Identifying leverage points within this complex system is key to designing interventions that can yield broad, sustained improvements in both energy access and health equity (Rutter et al., 2017).

### 3. METHODOLOGY

This paper selects a qualitative, theory-informed analytical approach to investigate the health implications of energy insecurity through a multi-dimensional lens. Given the complex, intersectional nature of the topic, spanning health, energy policy, infrastructure, and social justice, a narrative literature, based synthesis was selected as the most suitable methodological framework. This design allows for the integration of diverse sources of evidence and conceptual models, enabling a nuanced analysis of both direct and indirect health impacts across various global contexts. Analytical Framework and Design is grounded in three intersecting frameworks: the three-dimensional model of energy insecurity (physical, economic, behavioral) as conceptualized by Hernández (2016); the social determinants of health framework, which highlights the broader socioeconomic conditions that shape health outcomes (Marmot & Wilkinson, 2005) and the energy justice perspective, which addresses the equitable distribution of energy services and the ethical considerations of energy production and consumption (Sovacool et al., 2016). These frameworks are further synthesized through a systems thinking perspective, which helps identify feedback loops, non-linear interactions, and emergent patterns that connect energy access, health outcomes, and resilience (Meadows, 2008; Rutter et al., 2017).

This study draws on secondary data from a wide range of peer-reviewed journal articles, policy documents, and organizational reports published between 2010 and 2024. Primary sources were identified through academic databases such as: Scopus, PubMed, Google Scholar, Web of Science. Key search terms included combinations of: energy insecurity, fuel poverty, health outcomes, mental health, public health, resilience, climate vulnerability, and energy justice.

The literature was selected based on the following inclusion criteria: focus on the relationship between energy (in)security and health outcomes; empirical or theoretical studies involving low-, middle-, or high-income countries; discussion of one or more dimensions of energy insecurity (physical, economic, behavioral); studies involving health system functioning, vulnerable populations, or household-level impacts. Studies focused solely on energy economics or technical system performance were excluded unless they included health-relevant components.

Findings were synthesized using thematic analysis, allowing for the identification of patterns across different dimensions of energy insecurity. Themes were mapped onto the analytical framework outlined above, with particular attention to: How physical infrastructure (e.g., housing quality, grid access) affects respiratory and cardiovascular health; How economic constraints on energy access lead to trade-offs in nutrition, heating, and healthcare usage; How behavioral coping mechanisms contribute to stress, injury, or disease exposure.

Several limitations must be acknowledged. First, this study does not include original fieldwork or quantitative meta-analysis; its strength lies in conceptual integration rather than statistical generalization. Second, the quality and regional specificity of available literature vary, potentially limiting comparability. Finally, while a systems perspective allows for holistic insight, it may obscure finer causal mechanisms that require further empirical investigation.

Despite these limitations, this methodology offers a rigorous and interdisciplinary foundation for understanding the health consequences of energy insecurity and identifying avenues for policy innovation and social change.

### 4. RESULTS AND DISCUSSIONS

Research on energy insecurity and its effects on health has grown steadily over the past two decades, reflecting a shift toward interdisciplinary inquiry at the intersection of energy policy, social inequality, and public health. Although early studies focused primarily on energy access in developing countries, recent work emphasizes the widespread nature of energy insecurity, even in high-income nations, and its multifaceted consequences for physical, mental, and institutional health outcomes. This literature review is organized around three primary themes aligned with the analytical framework of this paper: (1) physical infrastructure and housing quality, (2) economic vulnerability and affordability, and (3) behavioral adaptation and psychosocial stress.

#### 4.1. Physical Infrastructure, Housing, and Health Risks

A significant body of literature highlights the direct health effects of inadequate energy-related

infrastructure, particularly in the context of housing. Poor insulation, unreliable electricity, and dependence on polluting fuels have been strongly associated with respiratory illnesses, cardiovascular problems, and excess winter mortality (Liddell & Morris, 2010; Thomson et al., 2017). In low-income settings, energy insecurity often results in exposure to indoor air pollution from biomass or kerosene stoves, contributing to the global burden of disease, especially among women and children (Bonjour et al., 2013). Energy-insecure households frequently live in substandard housing that lacks adequate ventilation, heating, or cooling systems. These conditions exacerbate chronic illness, reduce immune system function, and increase vulnerability to climate extremes (Siegel et al., 2024).

#### 4.2. Economic Energy Burden and Trade-offs in Health

The economic dimension of energy insecurity has received increasing attention in recent studies, particularly through the concept of “energy burden”, the proportion of household income spent on energy. High energy burden is associated with difficult trade-offs in household budgeting, including reduced spending on food, healthcare, and medications (Hernández, 2016; Drehobl & Ross, 2016). Households facing high energy costs often resort to energy rationing, limiting heating or lighting to unsafe levels, or relying on dangerous alternatives such as open flames or faulty heaters, increasing risks of fire, burns, or carbon monoxide poisoning. These coping strategies disproportionately affect low-income, elderly, and chronically ill individuals, contributing to cumulative health risks (Mould & Baker, 2017). Furthermore, studies have shown that high energy costs contribute to energy-related stress, which correlates with mental health issues such as anxiety, depression, and social isolation (Hernández et al., 2016; Jessel, Sawyer, & Hernández, 2019).

#### 4.3. Behavioral Adaptation, Resilience, and Mental Health

The behavioral dimension of energy insecurity includes both adaptive and maladaptive coping strategies employed by individuals and households to manage constrained energy access. Positive responses, such as conserving energy or engaging in community-based sharing practices, reflect household resilience and resourcefulness. However, negative responses, including unsafe heating practices or avoiding healthcare visits to save energy costs, often result in direct harm to health and safety (Hernández, 2016). Studies have increasingly emphasized the psychosocial toll of energy insecurity. Living without consistent or adequate energy can induce a loss of control, diminished self-worth, and ongoing fear of disconnection. In vulnerable populations, this stress can have profound long-term mental health consequences, especially among children and caregivers (Hernández & Siegel, 2019; Cook et al., 2008). Furthermore, energy insecurity is shown to undermine social cohesion by isolating families and increasing stigma.

#### 4.4. Emerging Topics: Climate Change, Health Systems, and Energy Justice

Recent literature has expanded the discussion to include climate vulnerability, emphasizing that climate change intensifies energy insecurity through extreme weather events, disrupted infrastructure, and shifting energy demand (Baker et al., 2018). This has implications not only for household health, but also for health system preparedness, as hospitals and clinics increasingly depend on reliable energy for cold chains, life support, and data systems. The literature also reflects a growing interest in energy justice, a framework that situates energy insecurity within larger questions of equity, recognition, and procedural fairness (Sovacool et al., 2019). Studies argue that energy transitions must be planned with justice in mind, avoiding the reproduction of existing health disparities or the creation of new “sacrifice zones” (Healy & Barry, 2017).

**Table 1.** Literature review organized around primary themes

Theme	Key Findings	Authors and year
Physical Infrastructure & Housing	Inadequate housing linked to increased winter mortality and poor respiratory outcomes	Liddell & Morris (2010)
Physical Infrastructure & Housing	Indoor air pollution from biomass fuels is a major global health risk, especially for women and children	Bonjour et al. (2013)
Economic Burden & Trade-offs	High energy burden forces households to choose between heating and essential needs like food and medicine	Drehobl & Ross (2016)
Economic Burden & Trade-offs	Energy insecurity contributes to material hardship and limits healthcare utilization.	Hernández (2016)
Behavioral Adaptation & Mental Health	Energy-related stress correlates with anxiety, depression, and isolation	Jessel et al. (2019)
Behavioral Adaptation & Mental Health	Behavioral coping strategies often place health and safety at risk	Cook et al. (2008)
Climate Vulnerability & Health Systems	Extreme weather events exacerbate grid instability and reduce healthcare system capacity	Baker et al. (2018)
Climate Vulnerability & Health Systems	Health system resilience depends on energy reliability for cold chains, equipment, and communications	Blanchet et al. (2017)
Energy Justice & Equity	Energy injustice results in disproportionate burdens for marginalized communities	Healy & Barry (2017)
Energy Justice & Equity	A just energy transition must consider equity, recognition, and fair distribution of costs and benefits	Sovacool et al. (2019)

Source: Authors' research

The findings demonstrate that energy insecurity not only reflects material deprivation but also reproduces cycles of vulnerability that manifest in poor physical and mental health outcomes. Importantly, these effects are not merely additive, they interact in nonlinear and reinforcing ways that exacerbate existing social inequalities, particularly among already marginalized populations. A major insight emerging from the reviewed literature is the circular nature of energy-health deprivation. Poor housing and unreliable infrastructure not only expose individuals to environmental hazards but also increase long-term health expenditures, which in turn reduce disposable income and the ability to invest in safer energy options. This cycle is further intensified when behavioral adaptations, intended to preserve energy or finances, inadvertently introduce new health risks, such as the use of open flames or the restriction of heating in cold months.

When assessing the health impacts of energy insecurity, scholars distinguish between direct and indirect effects. Direct health outcomes include cardiovascular and respiratory illnesses, arthritis, cancer, anxiety, and depression (Liddell & Morris, 2010), while indirect pathways involve mediators such as food insecurity, social stress, and reduced healthcare access (Graff et al., 2021). Jessel et al. (2019) offer an important heuristic model that categorizes energy insecurity as either chronic, a persistent inability to meet basic energy needs, or acute, which results from temporary disruptions such as fuel shortages or power outages. Their model identifies predictors, mediators, and outcomes, revealing how energy insecurity functions as a systemic feedback loop in which certain factors can act as both cause and consequence, worsening over time and increasing health risks. The COVID-19 pandemic exemplified how external crises can intensify energy insecurity (Boateng et al., 2021). Prior to 2020, energy vulnerability in the United States was already projected to rise due to infrastructure costs and policy shifts. The pandemic introduced new stressors: stay-at-home orders elevated residential energy demand, while hygiene protocols and healthcare costs strained household budgets. Despite this, energy insecurity was largely absent from emergency policy frameworks, highlighting a critical gap in government responses (Graff & Carley, 2020). The concept of energy insecurity as a social determinant of health underscores the need for health policy frameworks to move beyond clinical settings and incorporate broader infrastructural and environmental conditions. Similarly, the energy justice perspective reveals that technical solutions alone, such as grid expansion or fuel subsidies, are insufficient unless they are accompanied by policies that address procedural fairness and distributive equity. Without a justice-centered approach, energy

transitions risk reinforcing rather than resolving health disparities.

In addition, the growing relevance of climate change as a stressor on energy systems further complicates the health-energy nexus. Extreme weather events, grid instability, and rising energy prices will likely intensify both system-level and household-level energy insecurity in the coming decades. Health systems, therefore, must be treated not only as responders but as stakeholders in energy resilience planning. Climate-related disruptions disproportionately impact those already experiencing chronic energy insecurity, reducing their ability to adapt and recover. As such, climate change compounds the health consequences of energy insecurity and reinforces the structural barriers that prevent equitable access to essential services. In this context, exploring the energy-health-justice nexus offers a promising analytical lens for policy innovation. It shifts the conversation from short-term interventions to systemic change, calling for governance models that prioritize social equity, resilience, and long-term sustainability.

## 5. CONCLUSIONS

Energy insecurity is more than a technical or economic issue, it is a public health concern with profound social, physical, and psychological implications. Through this multi-dimensional analysis, it is clear that energy insecurity affects health outcomes through intersecting pathways that include inadequate housing, high economic burden, and risky behavioral adaptations. These effects are unevenly distributed, with low-income, marginalized, and medically vulnerable populations facing the greatest risks. Policymakers must begin to treat energy as a determinant of health and incorporate energy access considerations into health equity agendas. This includes funding for infrastructure improvements, targeted subsidies for vulnerable populations, and integrated resilience planning between the energy and health sectors. Moreover, energy transitions must be designed not only for sustainability but for justice, ensuring that no population bears a disproportionate burden of energy deprivation or environmental harm.

Future research should focus on generating robust, regionally sensitive data and developing interdisciplinary frameworks that inform both policy and practice. By embracing a systems perspective and recognizing the health consequences of energy insecurity, societies can move toward more equitable, resilient, and humane models of development.

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# AN ANALYSIS OF THE IMPACT OF FINANCIAL INCLUSION DETERMINANTS ON POVERTY ALLEVIATION IN SERBIA

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**Abstract:** In this paper, we examined how financial inclusion affects poverty reduction in the Republic of Serbia. We conducted an analysis based on data collected from the World Bank and IMF databases. Our goal was to examine the level of inclusion in the Republic of Serbia and how determining financial inclusion can support poverty reduction strategies in a developing country. The findings show that increasing the financial inclusion index can significantly contribute to poverty reduction in the Republic of Serbia, especially through mechanisms to improve access to financial services. The paper also presents a comparative perspective with other regions and countries, in order to assess the robustness of the findings and to see a broader picture of the functioning of financial inclusion mechanisms in the fight against poverty and inequality. We have determined that there is a greater need for digital financial channels, that is, it is necessary to force digital financial inclusion as one of the main generators of financial development in modern societies. The data we have processed unequivocally indicate that digital tools and financial products can play an important role in strengthening financial inclusion and the economic empowerment of marginalized groups and groups in rural areas. The findings in this paper are important for decision-making and for creating adequate measures and policies aimed at the financial empowerment of the most vulnerable segments of the population. The paper provides a significant basis for further research that could more precisely measure individual factors of financial inclusion and their contribution to poverty reduction.

**Keywords:** *inclusion, poverty, digitization, literacy, rural, growth.*

**Field:** Social Sciences and Humanities.

## 1. INTRODUCTION

Financial inclusion has become critical for global economic growth and poverty reduction. This notion encompasses a variety of services and seeks to empower individuals and communities by giving tools and opportunities to efficiently manage their finances, build their own resources, and invest in the future. In Serbia, a country with complicated economic and social characteristics, it is critical to find how financial inclusion can serve as a method of poverty alleviation. Although implemented economic reforms have resulted in some positive changes, poverty remains a major issue because a large number of citizens are practically excluded from the financial system, which reinforces all the negative effects caused by the spiral of poverty.

In Serbia, financial inclusion is hampered by a number of factors, including inadequate bank access, particularly in rural regions, low financial literacy, high transaction costs, and the informal economy. These factors exacerbate the poor's plight, making it impossible for them to improve their financial circumstances and break free from the poverty cycle. Numerous studies from other countries confirm the positive link between poverty alleviation and financial inclusion; when people have access to official financial services, they can build a credit history, obtain funding for entrepreneurial projects, and protect themselves from financial risks through insurance products. Thus, by encouraging savings and investments, it allows people to build up funds and protect themselves from economic shocks.

Given the global trend towards digital and technical solutions in the financial sector, it is critical to analyze how these innovations might be utilized in Serbia and their potential influence on boosting financial inclusion and poverty reduction. We must especially emphasize that digital financial inclusion is certainly one of the significant mechanisms that has proven to be extremely effective in contributing to poverty reduction. However, considerable improvement requires the development of comprehensive policies and efforts including the government, financial institutions, and other key actors. Financial development is acknowledged as a critical component in highlighting the importance of the fight against poverty and encouraging the development economy, especially in developing countries (Beck, Demirguc-Kunt, and Levine, 2007). The rise of digital financial services has increased prospects for financial inclusion (Jack & Suri, 2014), providing affordable and accessible ways that the financially vulnerable part of the population has access to the financial system and to realize cashless transactions. In relation to research that examined digital financial inclusion, it considerably contributes to poverty reduction, but the effects on

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users vary depending on their level of poverty (Lee, Lou, & Wang, 2023).

In this paper, we examined the channels of influence of financial inclusion factors on poverty reduction in the Republic of Serbia by reviewing the current situation, identifying key barriers, and evaluating existing policies and initiatives. The emphasis is on making evidence-based suggestions that will encourage higher levels of financial inclusion and lower levels of poverty in the country, resulting in a more equitable society for all inhabitants. By correctly observing these relationships and influences, we can arrive at a more precise definition of correct and effective policies.

## 2. MATERIALS AND METHODS

In this research paper, we examined the impact of financial inclusion factors on poverty alleviation in Serbia using both qualitative and quantitative methodologies. The goal was to obtain a better knowledge of the existing condition of financial inclusion, as well as to identify important impediments that excluded communities face in the country. The study will also evaluate the effectiveness of current laws and initiatives which are focused on strengthening access to various financial services.

The data used in this study is primarily secondary and was gathered from a variety of sources. We used primary data from the IMF, World Bank, and OECD databases. Additionally, reports from domestic organizations such as the National Bank of Serbia (NBS), the Republic Statistical Office, the Ministry of Finance, and other pertinent state entities were used.

Data analysis was carried out using a qualitative methodology, largely through thematic analysis, which allowed major themes and patterns to be identified. Thematic analysis was utilized to investigate issues such as inadequate banking infrastructure access, a lack of financial literacy, high transaction costs, and gender disparities in access to financial services. This approach enables researchers to investigate the complicated links between financial inclusion and socioeconomic indicators, providing insight into the unique issues that various population groups confront.

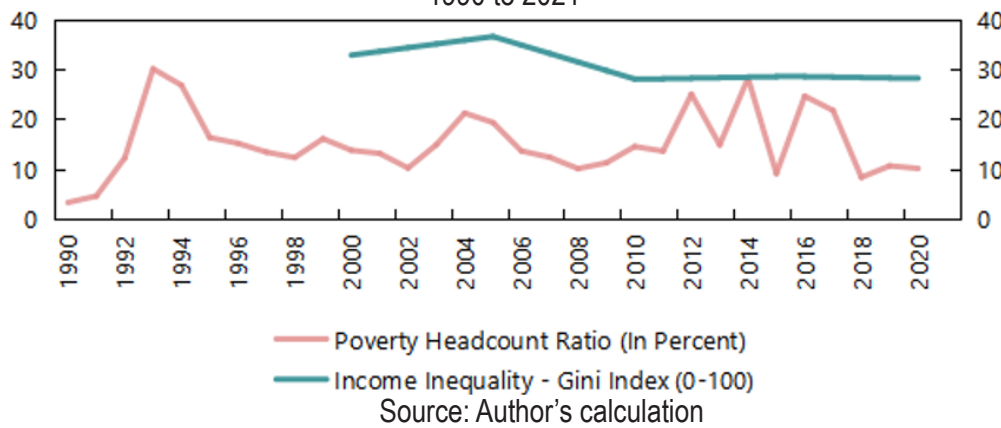
In addition to qualitative study, quantitative methodologies were employed to assess the impact of various factors on financial inclusion. For example, data on the poverty rate, poverty gap, and multidimensional poverty were gathered from statistical sources such as the Republic Institute of Statistics. To uncover trends and patterns associated to financial inclusion, these data were analysed using descriptive statistics, such as frequency distributions and measures of central tendency.

This thorough methodology approach allows for a more in-depth knowledge of the complexities of the relationship that occurs between the phenomenon of financial inclusion and the reduction of the poverty rate defined by the poverty line in Serbia, giving a foundation for developing effective policies and interventions.

## 3. RESULTS

This chapter covers major study findings about how financial inclusion can impact poverty reduction in Serbia. Through the examination of available data and information, the important determinants impacting opportunities to access financial services and their involvement in reducing poverty were determined. The study's findings demonstrate that there is a large disparity in opportunities to access financial services between urban and rural locations in Serbia. A key obstacle to expanding financial inclusion lies in the limited on-the-ground availability of banking services in remote regions. Recent analyses reveal that over 40% of individuals residing in rural areas within the country are not consistently able to open accounts, secure loans, or acquire insurance. This limitation has a negative impact on individuals' and communities' ability to engage in economic activities and invest in their own future. There should be a focus on developing financial literacy. Financial literacy programs are becoming increasingly important as a means of reducing poverty (Lusardi & Mitchell, 2011). Consumers can make informed choices regarding their finances, manage their assets effectively, and steer clear of debt traps if their financial literacy improves (Hastings, Madrian, & Skimmyhorn, 2013). The provision of sound financial education represents the cornerstone on which the rapid growth of financial inclusion is established.

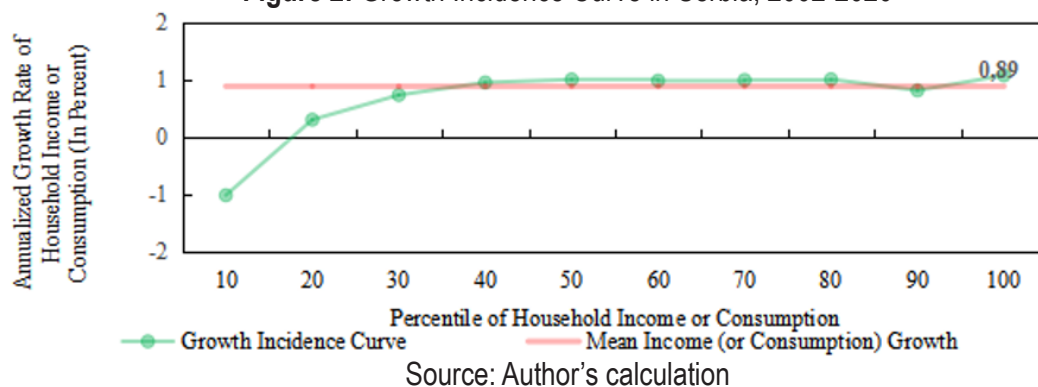
**Figure 1:** The Gini Index and the number of people living below the poverty level of \$6.85 from 1990 to 2021



The relationship between these two indicators reveals a complex economic ecosystem in Serbia. While poverty levels have varied, sometimes dramatically, underlying income inequality has largely remained unchanged. This may indicate that poverty reduction efforts have had a limited impact on changing the broader distribution of income or that the structural factors contributing to inequality have been resistant to change.

The above chart highlights the challenges of simultaneously solving the problems of poverty and income inequality. Although there have been improvements in poverty reduction, particularly in recent years, income inequality has remained relatively stable, highlighting the need for targeted policies that effectively address both issues. A study of 13 Latin American countries shows that financial inclusion and the embracing innovative tools, including mobile device usage, are powerful tools for reducing poverty and inequality (Gini Index), which highlights the need for policies that support the broadening reach of financial offerings and technological integration (Polloni-Silva, da Costa, Morales & Sacomano Neto, 2021).

**Figure 2:** Growth Incidence Curve in Serbia, 2002-2020

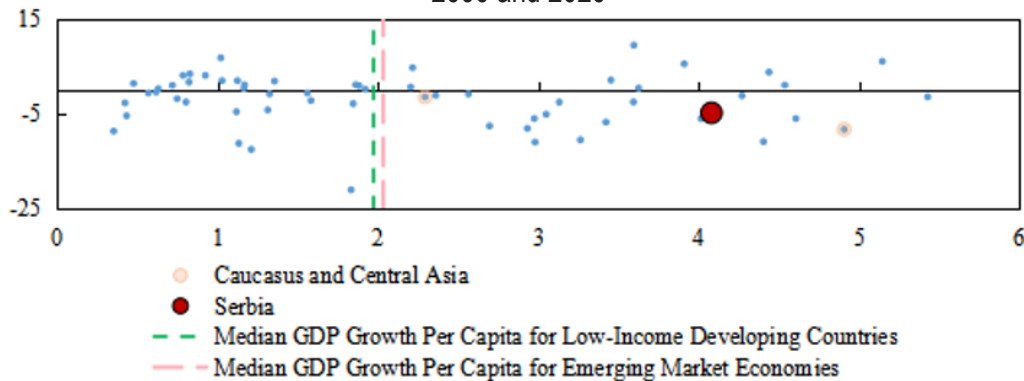


The growth incidence curve for Serbia between 2002 and 2020 shows that middle-income households generally had stronger income or consumption growth compared to the poorest and richest segments of the population. Negative growth at the bottom end indicates a worrying trend of economic stagnation or decline among the poorest, while slightly lower growth at the top indicates that income or consumption growth has been more moderate among the richest. This distribution of growth points to the need for targeted policies that would support the most vulnerable groups and ensure that economic growth more equitably benefits all segments of the population. Evidence indicates that higher levels of financial inclusion and depth in public sector banks are strongly associated with a decrease in poverty, whereas private banks show no comparable effect. This underscores the significance of strengthening public financial institutions within broader strategies for reducing poverty (Inoue, 2019).

The poverty gap is another major factor that highlights the difficulties that underprivileged groups endure. According to the data, the poverty gap of USD 6.85 per day (2017 PPP) has dropped from 10.6% in 2012 to 3.6% in 2020, suggesting a gradual reduction in the depth of poverty among the population. However, development has not been evenly spread across all groups, and the poorest regions continue

to face the most significant impediments to gain access to financial services.

**Figure 3:** Shifts in income disparity and GDP per capita across Serbia and its peer nations between 2000 and 2020



Source: Author's calculation

Positive GDP-per-capita growth, evidenced by a rightward shift on the vertical axis, signifies that Serbia experienced economic progress over the observed period. However, findings below the horizontal axis indicate that this advancement was also accompanied by widening income disparities. In other words, although the Serbian economy grew, the resulting benefits were evidently not distributed evenly, thereby exacerbating income gaps. A comprehensive study across 53 developing countries shows that broader availability of financial services exerts a beneficial effect on reducing both poverty and income inequality. In particular, an extensive banking network and simpler access to credit aid the most at-risk segments of the population in obtaining financial services, which in turn alleviates poverty and narrows the income divide. These outcomes highlight the importance of reinforcing institutional structures to foster a more pronounced and efficient impact on socio-economic progress (Ouechtati, 2020).

The study found considerable gender inequalities in access to financial services, especially in remote rural communities. Women, especially those living in rural communities, face greater barriers to accessing banking services and products compared to men. For example, data shows that only 25% of women in rural areas had a bank account compared to 35% of men. This difference further hinders women's economic empowerment and their access to financial resources necessary for entrepreneurial activities and other economic endeavors. This indicates the need for targeted policies that will provide more equal access to women and help reduce gender disparities. Research on sub-Saharan Africa has shown that a financial inclusion level exceeding 0.365 significantly reduces poverty, especially when supported by increased money supply and access to domestic credit for the private sector, indicating the need for policies that foster an enabling environment for accessible and affordable financial services (Nsiah, Yusif, Tweneboah, Agyei & Baidoo, 2021). A study in Ghana indicates that enhanced financial inclusion decreases a household's odds of living in poverty by 27%, as well as the risk of sliding into poverty by 28%, with a pronounced impact in female-headed households and rural communities experiencing greater reductions in poverty as well as vulnerability as a result of improved financial literacy, highlighting the need for policies that support the expansion of financial services and mobile money (Koomson, Villano & Hadley, 2020).

The COVID-19 pandemic underscored the urgency of advancing digital financial inclusion in Serbia, especially for individuals marginalized by the conventional financial system. Tools such as mobile banking, digital wallets, and online financing have demonstrated considerable effectiveness in expanding access to financial services. The survey discovered that the number of mobile financial service users has increased by 50% in the last two years, indicating a great opportunity for digital innovation to improve financial inclusion. However, a lack of digital literacy and internet access, particularly in rural regions, presents a barrier that necessitates the creation of additional digital inclusion methods.

An evaluation of current legislation and policy measures designed to enhance financial inclusion indicates that, although certain initiatives have contributed to improved access, significant gaps remain, necessitating further efforts to ensure broader and more equitable outreach. For example, a national financial inclusion strategy encompassing a diverse range of actors, such as the government, the corporate sector, and non-governmental groups, has the potential to generate major positive change. To guarantee inclusive access to financial services across all segments of the population, greater efforts must be directed toward raising awareness and educating citizens about current opportunities, lowering

transaction costs, and enhancing the regulatory framework. According to Mhlanga Dunga and Moloji's research, financial inclusion plays a pivotal role in alleviating poverty among smallholder farmers, underscoring the necessity for government-led policies that enhance access to financial institutions, lower transaction costs, and promote financial literacy—thereby fostering deeper farmer engagement within the formal financial system (Mhlanga Dunga & Moloji, 2020).

#### 4. DISCUSSIONS

The study's findings show a large disparity in access to financial services between urban and rural areas, which is one of Serbia's most pressing barriers to poverty reduction. Limited physical access to banking infrastructure in rural areas, along with limited availability of services like as loans, insurance, and savings, results in the exclusion of a substantial segment of the population remains detached from the formal financial system. To address this discrepancy, economical along with innovative approaches, including mobile financial services and decentralized financial networks, must be integrated, allowing access to financial services even in remote places. This would entail lowering transaction costs and enhancing the regulatory framework to promote inclusivity.

Digital financial inclusion has proven to be a vital instrument for broadening access to financial services, particularly during the COVID-19 epidemic, which has increased the growing significance of digital innovations within the financial sector. The adoption of digital tools, including mobile banking and digital wallets, can help to transcend geographical and physical boundaries. However, to guarantee the effective implementation of digital inclusion, there must be a focus on developing digital literacy, particularly among the elderly and rural communities. Gender disparities in access to financial services pose an added obstacle to advancing financial inclusion in Serbia. Studies indicate that women—particularly those living in rural regions—face more restricted access to banking products and credit facilities than their male counterparts. These differences are often due to socio-cultural barriers and a lack in the domain of financial literacy among women. In order to improve gender equality in the financial sector, it is recommended to develop specific programs that target women and provide them with education and support for using financial services. Furthermore, it is critical to encourage women's entrepreneurship through microfinance programs and guarantee that financial institutions produce goods and offerings specifically designed to address women's financial needs.

Although existing laws and programs promoting financial inclusion in Serbia have the potential to help reduce poverty, more steps must be made to ensure their efficacy. A national financial inclusion strategy involving all key stakeholders (government, private sector, and non-governmental organizations) can serve as a powerful instrument for achieving inclusive economic growth. However, greater focus is needed on policy implementation at the local level, especially in marginalized communities. This may include increasing awareness of existing opportunities, adapting products to the needs of users, as well as providing support through educational and advisory services.

Based on the results of the research, several concrete measures are recommended that can play a key role in enhancing financial inclusion and alleviating poverty in Serbia:

1. Development and promotion of digital financial solutions that are accessible and useful to all citizens, including marginalized groups;
2. Educational initiatives focused on financial and digital literacy, especially for women, the elderly population, and residents of rural areas;
3. Encourage gender equal treatment and female entrepreneurship through policies and programs;
4. Improve regulatory framework to reduce transaction costs and encourage small and medium-sized enterprises to engage with and benefit from the formal financial system;
5. Strengthen public-private partnerships to create environmentally accessible and inclusive financial services designed to serve all segments of society.

#### 5. CONCLUSIONS

This study examining the impact of financial inclusion on poverty reduction in Serbia have shown that improved access to financial services significantly enhances economic stability and living conditions, especially for marginalized and underserved segments of the population. The main findings indicate that restricted physical access to banking facilities, inadequate financial literacy, high transaction costs, and gender inequities are the primary hurdles to increased financial inclusion in the country. These difficulties necessitate a comprehensive approach and collaborative efforts from all key actors, including the government, financial institutions, non-governmental groups, and local communities.

One of the key takeaways of this paper is that digital financial inclusion serves as a crucial mechanism for overcoming geographic and physical barriers to accessing financial services, especially in rural and underserved areas. The growing adoption of mobile financial services and digital wallets marks a significant advancement toward building a more inclusive and accessible financial ecosystem. However, in order to fully realize the benefits of digital inclusion, efforts must be made to increase digital and financial literacy, particularly among the elderly and rural communities. As a result, it is critical to create focused training programs and campaigns to help citizens better understand and use digital financial goods and services.

Equal treatment of women in having access to banking services is an important part of Serbian financial inclusion. Research has demonstrated that women, particularly those in rural areas, face more limited access to financial resources than men. In order to reduce these differences, it is necessary to implement targeted policies and programs that promote equality and enable women to access the necessary financial services. These initiatives should also include support for women's entrepreneurship through microfinance programs and educational programs that will empower women to make informed financial decisions.

Existing policies and initiatives for financial inclusion in Serbia provide a good foundation, but additional improvements are needed to ensure their effectiveness and sustainability. A national financial inclusion strategy that involves the state, the commercial sector, and civil society can be a significant force for change. The idea is to concentrate on implementation at the local level, where hurdles are typically most visible. More work is needed to lower transaction costs, raise knowledge of existing opportunities, and create financial products that cater to the requirements of underprivileged people.

Ultimately, financial inclusion stands as a vital pillar of Serbia's strategy for poverty alleviation and sustainable economic development. To attain this goal, it is vital to build integrated and coordinated plans that engage all parts of society and ensure equitable and long-term access to financial services. The proposed actions and efforts from this research can serve as recommendations for ongoing policy and practice development, ensuring a future that is more inclusive and socially equitable for all Serbian residents.

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# ARTIFICIAL INTELLIGENCE AND DATA ANALYTICS IN HUMAN RESOURCE MANAGEMENT: DIGITAL TRANSFORMATION AND COMPETITIVE ADVANTAGE OF ENTERPRISES

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**Abstract:** In the digital age, human resource management (HRM) increasingly relies on artificial intelligence (AI) and data analytics to enhance key processes and enable strategic decision-making. This dissertation explores how the integration of AI technologies, including machine learning and big data analytics, can improve essential HR functions such as recruitment and selection, talent retention, employee performance evaluation, and professional development. Special emphasis is placed on identifying patterns in employee data that facilitate proactive decision-making in HR. The empirical part of the research utilizes predictive analytics to model factors influencing employee performance and organizational efficiency. By analyzing real-world business data, this study examines how AI can assist managers in making better decisions and optimizing workforce management. The findings provide insights into the practical benefits of AI applications in HRM, demonstrating how companies can refine their human capital management strategies to strengthen their competitive position. This dissertation contributes to existing literature in HRM, data analytics, and AI by offering an innovative approach to data-driven strategic HR management. The proposed model serves as a guide for organizations seeking to leverage AI to improve business performance and achieve sustainable competitive advantage. The methodological framework is based on the integration of quantitative research methods, with a particular focus on applying data analytics and AI in HRM to develop and validate a model that enhances HR processes.

**Keywords:** HRM, transformation, SME.

**Field:** Social Sciences

## 1. INTRODUCTION

In today's fast-paced and data-driven business landscape, human resource management (HRM) is undergoing a significant transformation through the adoption of artificial intelligence (AI) and data analytics. As organizations seek to enhance their competitive edge, the integration of AI into HR processes has emerged as a strategic priority. AI-powered solutions are revolutionizing traditional HR functions by enabling data-driven decision-making, optimizing workforce management, and improving employee engagement. However, despite the potential benefits, the implementation of AI in HRM presents challenges, including data privacy concerns, the need for digital skills, and resistance to technological change.

The role of AI in HRM extends across various critical functions, including talent acquisition, performance management, employee retention, and workforce planning. Predictive analytics and machine learning algorithms can identify patterns in employee behavior, allowing organizations to make proactive decisions that enhance overall efficiency and productivity. Moreover, AI-driven automation reduces administrative burdens, freeing HR professionals to focus on strategic initiatives such as employee development and organizational culture enhancement.

A key challenge in adopting AI in HRM is ensuring alignment between technological advancements and organizational objectives. While large corporations often have the resources to implement AI seamlessly, smaller and medium-sized enterprises (SMEs) may struggle with limited budgets, lack of technical expertise, and concerns about job displacement. Effective leadership and change management strategies are essential to navigating these challenges, fostering a culture of innovation, and ensuring smooth AI integration. Transparent communication, continuous training, and ethical AI implementation play crucial roles in mitigating resistance and maximizing the benefits of AI-driven HRM. This research explores the impact of AI and data analytics on HRM, focusing on how these technologies contribute to competitive strategy development. By examining real-world applications and challenges, the study aims to provide actionable insights for organizations seeking to leverage AI to optimize HR processes. The research will also highlight best practices for AI-driven HR transformation, emphasizing the importance of data governance, employee engagement, and ethical considerations. Ultimately, the successful integration

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of AI in HRM depends on an organization's ability to balance technological efficiency with a human-centric approach. By harnessing AI's capabilities while prioritizing employee well-being and organizational culture, businesses can achieve sustainable competitive advantage in an increasingly digital economy.

## 2. LITERATURE REVIEW

The adoption of artificial intelligence (AI) and data analytics in human resource management (HRM) is transforming traditional HR practices, offering organizations new ways to enhance decision-making, optimize workforce management, and improve overall efficiency. However, the successful implementation of AI in HRM requires a strategic approach that balances technological advancements with human-centric leadership. This literature review explores three critical dimensions of AI-driven HRM: the role of predictive analytics in HR decision-making, AI-powered talent management, and ethical considerations in AI implementation.

### 2.1. Predictive Analytics in HR Decision-Making

Predictive analytics has emerged as a powerful tool for HR professionals, enabling data-driven decision-making to enhance workforce planning and employee performance management. Researchers highlight that machine learning models can analyze historical HR data to predict employee turnover, identify high-potential employees, and optimize recruitment processes (Dulebohn & Johnson, 2020). By leveraging big data, organizations can proactively address workforce challenges and implement targeted interventions to improve retention and engagement.

One key area where predictive analytics has shown significant impact is in recruitment and selection. AI-driven algorithms assess candidate profiles based on skills, experience, and cultural fit, reducing bias in hiring and streamlining the selection process (Ekuma, 2024). Additionally, predictive models help HR managers forecast skill shortages and workforce demands, allowing for more effective talent acquisition strategies.

Despite these benefits, the implementation of predictive analytics in HRM is not without challenges. Issues related to data accuracy, model interpretability, and integration with existing HR systems pose significant barriers (Kapoor & Sherif, 2021). Organizations must invest in data governance frameworks to ensure reliable analytics and avoid flawed decision-making based on incomplete or biased datasets.

Moreover, the use of predictive analytics in employee performance management allows organizations to identify top performers and those who may need additional support or development. By analyzing patterns in employee behavior, managers can detect early signs of disengagement, providing opportunities for timely interventions that can prevent turnover and improve productivity. Predictive tools can also help tailor personalized learning and development plans, ensuring employees receive the training they need to grow within the organization.

In addition, predictive analytics enables HR teams to better understand the drivers of employee engagement. By assessing factors such as workload, leadership style, and work-life balance, organizations can pinpoint areas for improvement and create more effective employee engagement strategies. This data-driven approach not only enhances overall job satisfaction but also helps organizations align their human resource strategies with broader business goals. Another promising application of predictive analytics is in workforce planning. By forecasting labor demand and assessing current workforce capabilities, organizations can plan for future staffing needs more accurately. This can help mitigate the risks of understaffing or overstaffing, ensuring that the organization operates efficiently and meets its business objectives. Additionally, predictive models can be used to simulate various scenarios, helping HR professionals make informed decisions about talent deployment and resource allocation.

However, the effectiveness of predictive analytics in HRM depends on the quality and volume of data available. To fully harness the potential of these tools, organizations must ensure that they are collecting comprehensive, high-quality data across various HR functions, from recruitment to performance management. Without sufficient data, predictive models may produce unreliable results, leading to poor decision-making.

Ethical concerns also play a significant role in the adoption of predictive analytics in HRM. The use of employee data raises questions about privacy and consent, particularly when it comes to sensitive information such as health or personal behaviors. Organizations must establish clear ethical guidelines for data usage to ensure transparency and maintain employee trust. Moreover, predictive analytics should be used as a complementary tool, rather than a replacement for human judgment, to avoid over-reliance on algorithmic decision-making.

To maximize the benefits of predictive analytics, HR professionals need to develop a strong understanding of the technology and its potential limitations. Continuous training and collaboration

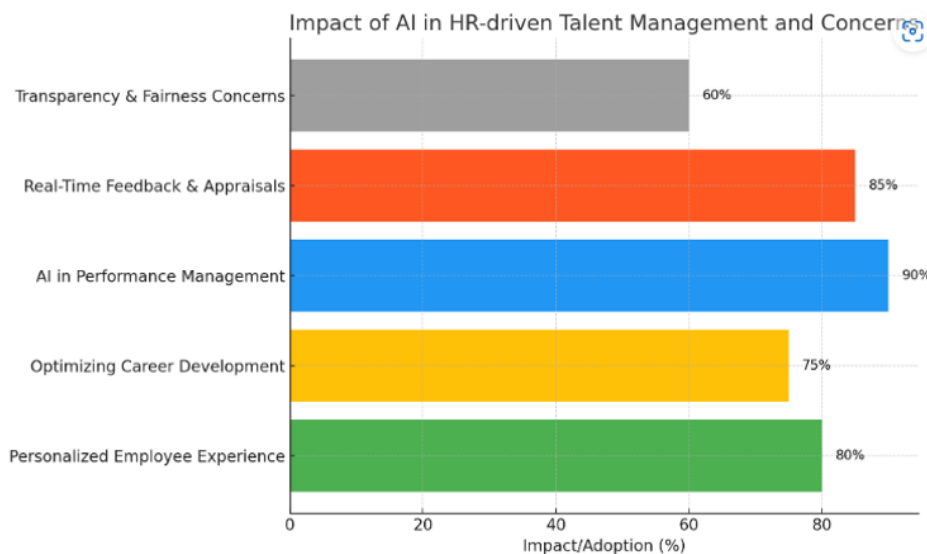
between HR teams and data scientists are essential for effective implementation. With the right approach, predictive analytics can empower HR professionals to make more informed, proactive decisions that enhance both employee well-being and organizational performance.

## 2.2. AI-Powered Talent Management and Employee Experience

AI-driven talent management systems are redefining traditional HR functions by personalizing employee experiences and optimizing career development initiatives. Intelligent HR platforms use natural language processing (NLP) and sentiment analysis to assess employee feedback, monitor engagement levels, and predict job satisfaction trends (Bhardwaj et al., 2022). These insights enable HR professionals to implement data-backed policies that improve workplace culture and employee well-being.

One of the most promising applications of AI in HRM is in performance management. AI-powered tools provide real-time feedback, automate performance appraisals, and suggest personalized training programs based on an employee's skill gaps and career aspirations (Jeske & Shultz, 2020). This adaptive approach enhances workforce development while fostering a culture of continuous learning.

**Figure 1.** Impact of AI in HR driven talent management and concerns



Source: Authors' internal analysis

However, concerns regarding transparency and fairness in AI-driven performance evaluations persist. Researchers emphasize the need for explainable AI (XAI) frameworks to ensure that AI-generated recommendations are understandable and unbiased (Binns, 2020). Without proper oversight, algorithmic decision-making in talent management could reinforce existing workplace inequalities rather than mitigating them.

AI-driven talent management systems are also transforming recruitment by streamlining candidate sourcing and selection. AI algorithms analyze vast pools of resumes and social media profiles, matching applicants with job roles that align with their skills, experiences, and cultural fit. This process reduces human bias in hiring, increases the speed of recruitment, and ensures that organizations attract diverse talent pools. However, it also requires careful oversight to prevent the reinforcement of existing biases in the selection process.

In addition to recruitment, AI is being leveraged to enhance employee retention strategies. Predictive analytics can identify at-risk employees by analyzing patterns in behavior, such as engagement, absenteeism, or job satisfaction. Early intervention can then be implemented through personalized retention programs, offering support such as career development opportunities or changes in workload to improve employee satisfaction and reduce turnover. This data-driven approach allows organizations to make more informed decisions on how to retain top talent.

Furthermore, AI is improving decision-making in organizational planning and resource allocation. By analyzing data from employee performance, turnover rates, and market trends, AI can assist HR professionals in predicting workforce needs and creating strategic workforce plans. This helps ensure that the right talent is in place at the right time, leading to better organizational performance and agility in responding to changes in the business environment. As AI continues to evolve, its integration into talent management systems will allow organizations to become more proactive, personalized, and efficient in

managing their human resources.

### 2.3. Ethical Considerations and Challenges in AI Implementation

As AI becomes an integral part of HRM, ethical concerns surrounding data privacy, bias, and fairness have gained increased attention. AI models rely on vast amounts of employee data, raising questions about informed consent, data security, and surveillance (Leicht-Deobald et al., 2019). Organizations must ensure compliance with legal and ethical standards, such as GDPR, to protect employee rights while leveraging AI for HR processes.

Bias in AI-driven HR systems remains a significant challenge. Studies have shown that AI models trained on historical hiring data can inadvertently reinforce gender, racial, or socioeconomic biases (Raghavan et al., 2020). Addressing this issue requires rigorous bias auditing, diverse training datasets, and human oversight in AI decision-making. Ethical AI governance frameworks play a crucial role in mitigating these risks and ensuring equitable HR practices.

Furthermore, the human-AI collaboration in HRM necessitates a balance between automation and human judgment. While AI enhances efficiency, complete reliance on algorithmic decision-making can undermine employee trust and reduce the perceived fairness of HR policies (Huang & Rust, 2021). Organizations must adopt a hybrid approach that integrates AI-driven insights with human expertise to maintain ethical and transparent HRM practices.

As AI continues to evolve, the implications for employee autonomy and agency also become a focal point of discussion. The automation of tasks such as performance evaluations or promotions raises concerns about the dehumanization of key HR processes. Employees may feel alienated or unfairly evaluated if AI systems are perceived as impersonal or overly deterministic, leading to decreased engagement and satisfaction. Therefore, transparency about how AI systems function and the rationale behind decisions is crucial for maintaining employee trust.

Moreover, AI in HRM must be evaluated not only for its technical effectiveness but also for its social and organizational impact. The introduction of AI can lead to job displacement, particularly for roles that are routine or administrative in nature. However, AI also has the potential to create new roles and improve employee development by identifying skills gaps and offering personalized learning opportunities. Organizations should invest in reskilling and upskilling programs to mitigate the negative impacts of AI adoption on employees.

Ethical dilemmas also arise in the context of AI's ability to predict employee behavior and performance. Predictive analytics tools can offer valuable insights, but they may inadvertently perpetuate existing power imbalances or invade privacy by predicting personal traits or behavior patterns. Safeguarding against such risks requires transparent algorithms and active employee involvement in the design and implementation of AI systems. As HR professionals integrate AI tools into the workplace, they must remain vigilant about the broader societal implications of AI's influence on employment and power dynamics within the organization.

## 3. DISCUSSION OF RESEARCH RESULTS

Based on the reviewed literature, four critical themes emerge:

- **Strategic AI Adoption in HRM:** AI should be used in alignment with HR objectives, focusing on improving workforce optimization and supporting employee development through predictive analytics and AI tools (Bhardwaj, Kumar, Singh, & Dhamija, 2022; Kapoor & Sherif, 2021).

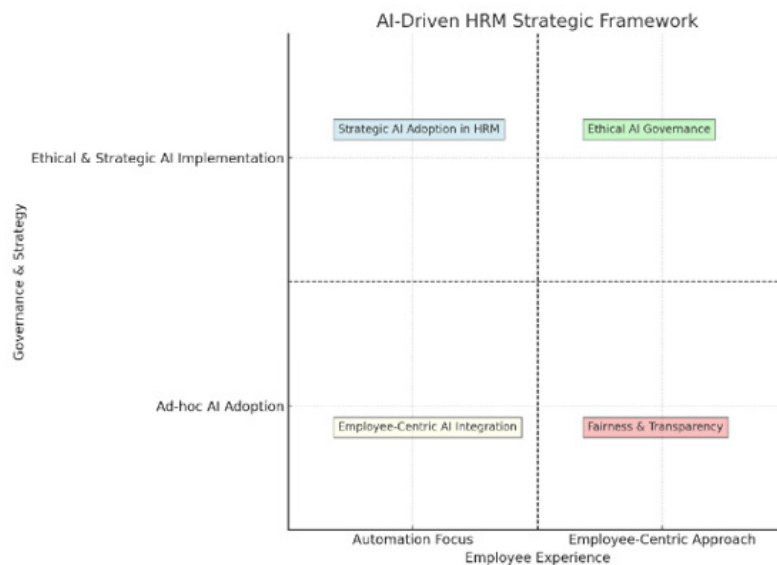
- **Fairness and Transparency:** It's crucial to ensure fairness in AI-driven HR processes like hiring, performance evaluations, and decision-making. Transparency, especially in AI model explainability, builds trust among employees and helps mitigate biases (Binns, C., 2020; Raghavan, Barocas, Kleinberg, & Levy, 2020).

- **Employee-Centric AI Integration:** AI should not just automate tasks but enhance the overall employee experience. A hybrid approach that combines AI insights with human intuition is necessary for effective integration (Jeske & Shultz, 2020; Leicht-Deobald et al., 2019).

- **Ethical AI Governance:** Organizations should create ethical guidelines and regulatory mechanisms to ensure AI is adopted responsibly. Data privacy, fairness, and security should be central concerns when implementing AI in HRM (Dulebohn & Johnson, 2020; Hutton & Moore, 2020).

Visualization below in Figure 2. represents the key critical findings out of this research:

**Figure 2. AI Driven HRM strategic framework**



Source: Authors

Organizations must invest in training and development to ensure employees have the skills needed to work effectively with AI technologies. Ethical considerations, such as transparency in decision-making processes and protecting employee privacy, should be prioritized to foster trust within the workforce. Additionally, leveraging AI to improve employee well-being, enhance communication, and personalize career development will contribute to greater engagement and retention. By integrating AI thoughtfully and responsibly, HRM can drive both innovation and a more inclusive, supportive environment for all employees.

#### 4. CONCLUSION

The integration of artificial intelligence (AI) into human resource management (HRM) represents a transformative shift in how organizations manage talent, optimize workforce performance, and enhance strategic decision-making. This study has explored the role of AI-driven analytics, predictive modeling, and automation in reshaping HR processes, emphasizing the importance of strategic leadership, digital transformation, and employee engagement in ensuring successful adoption. While AI offers numerous benefits, including improved recruitment, enhanced performance evaluations, and personalized employee development programs, its implementation also poses challenges such as ethical considerations, data privacy concerns, and employee resistance to technological change.

To fully harness the potential of AI in HRM, future research should address several key areas. First, further studies are needed to examine the long-term impact of AI-driven HR strategies on organizational performance, employee satisfaction, and workplace diversity. While existing research highlights the efficiency gains of AI, little is known about its broader implications for corporate culture and workforce dynamics.

Second, future research should focus on the ethical and legal dimensions of AI in HRM. As AI systems become more sophisticated, concerns regarding bias in hiring algorithms, data security, and employee privacy must be critically examined. Developing frameworks for fair, transparent, and accountable AI use in HRM is crucial to maintaining trust and compliance with evolving regulations.

Third, the role of human-centric AI design in HRM warrants further exploration. While automation can streamline processes, it is essential to ensure that AI applications support rather than replace human decision-making. Research on hybrid HR models—where AI complements human expertise—can provide insights into best practices for integrating technology without diminishing the value of human intuition and empathy.

Additionally, interdisciplinary research bridging AI, organizational behavior, and psychology could offer deeper insights into how employees perceive AI-driven HRM tools and how organizations can foster AI readiness among their workforce. Investigating the psychological impact of AI on employee motivation, engagement, and well-being will be crucial for developing strategies that balance technological advancements with human-centered work environments.

Finally, comparative studies across different industries and organizational sizes could enhance understanding of the contextual factors that influence AI adoption in HRM. While large corporations may have the resources to implement advanced AI systems, small and medium-sized enterprises (SMEs) face unique challenges in AI integration. Exploring tailored AI adoption strategies for SMEs can provide valuable insights into scalable, cost-effective solutions for a wider range of businesses.

In conclusion, AI-driven HRM presents both opportunities and challenges that require a balanced, strategic approach. By addressing the gaps in current research and focusing on ethical, psychological, and industry-specific factors, future studies can provide a comprehensive roadmap for organizations seeking to leverage AI in HRM while maintaining a human-centric approach. Continued exploration of these areas will not only enhance theoretical knowledge but also guide practitioners in developing AI-powered HR strategies that drive sustainable organizational growth and workforce well-being.

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# POLICE INTEGRITY TESTING AND ITS OUTCOMES IN THE REPUBLIC OF SERBIA

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**Abstract:** The article addresses integrity testing and its outcomes in the Serbian police practice. Besides defining integrity testing and outlining the procedure for its initiation and implementation within the existing legislative framework, the article also considers potential obstacles to applying integrity tests in certain areas of police work. Research on the integrity testing of police employees is based on data provided by the Report of the Internal Control Department, the authorized organizational unit of the Ministry of Interior responsible for implementing integrity testing. The data includes tests conducted from 2019 to September 2024. The research findings show that the focus of integrity testing was solely on police officers conducting police tasks in the capacity of authorized officials. Regarding the area of work, the tested officers were employed in the Uniformed Police Department and the Traffic Police Department. The integrity testing has proven to be a significant investigative tool for detecting corruption and other forms of unlawful behavior by police officers, as 28.8% of the tested officers failed to demonstrate their professional integrity. The results of the integrity testing revealed the presence of criminal offenses related to corruption, such as Abuse of Office and Soliciting and Accepting Bribes. This led to the filing of 15 criminal complaints against five police officers. Disciplinary proceedings were initiated against two police officers for severe violations of official duty. However, at this stage, integrity testing does not produce satisfactory outcomes, as police officers who fail to demonstrate professional integrity may evade criminal prosecution and, in some cases, even the initiation of disciplinary proceedings.

**Keywords:** *police, integrity, tests, outcomes, Republic of Serbia.*

**Field:** Social Sciences

## 1. INTRODUCTION

Professional and efficient police play a key role in maintaining public order in every country and represent an essential actor in the fight against corruption and organized crime, as a strategic goal for all modern countries. To effectively and legally fulfill its intended role, the police must act in accordance with all valid regulations and the code of police ethics. The issue of integrity is crucial for the police profession, especially for determining the legitimacy of the police as a body of executive government, whose task is to uphold the rule of law (Hickman et al., 2016). Various forms of police integrity violations, such as undisciplined behavior, corrupt behavior and police torture, represent a problem that has stimulated significant reforms within the police internal control system (Brkić, 2018). Police agencies around the world are striving to develop innovative strategies to prevent and detect violations of police integrity, such as integrity testing programs for police officers.

The integrity testing program was originally instituted in 1995 by the New York City Police Department's Internal Affairs Bureau (IAB) as a specialized corruption detection tool (Davis et al., 2000, p. 1). The integrity test represented a "sting operation", i.e., the use of undercover officers who create an artificial situation or condition designed to provoke a reaction from the police officer being tested, in order to observe whether the subject will act, or refrain from acting, in a way that aligns with the Department and legal guidelines (Girgenti et al, 1996, p. 3). Since its inception, police agencies in numerous states have implemented integrity testing.

Essentially, the testing is conducted by placing the police officer in a situation where they are given the opportunity to engage in unlawful or unethical behavior, without being aware that the situation is simulated. For example, police officer from the Internal Control Department (ICD) may conduct integrity testing by acting as a citizen who offers a bribe to a traffic police officer who stops him for speeding (DCAF, 2020, p. 7). The focus is on observing the reactions and behavior of the officer being tested in this simulated situation to assess his/her professional integrity, i.e., whether he/she refuses or accepts the bribe. In this context, integrity testing can be considered as an investigative method for evaluating the ethics and legality of a police officer's actions in a given simulated situation (Marinković, 2020, p. 594).

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In the scientific literature and police practice, integrity testing typically falls under two categories: random and targeted testing (Resimić, 2023; Pušić, 2022; Marinković & Kesić, 2020; Prenzler, 2006; Prenzler & Ronken, 2001). Random integrity testing focuses on corruption trends and is not based on prior specific knowledge that those being tested are engaging in unlawful or unprofessional behavior or are prone to corruption (Pušić, 2022). This means that each police officer has an equal chance of being subjected to testing within a specified period, although random testing often involves specific geographic locations and commands. As a result, testing may also include police officers who diligently and flawlessly perform their official duties (Mandić & Đorđević, 2016).

For that reason, Miller (2016) argue that integrity testing should be applied exclusively as a targeted measure, focusing on individual officers or groups of officers who are reasonably suspected of committing relevant crimes. This kind of testing is initiated by preliminary, objective and reasonable information that provides sufficient reason to believe that the tested individual may engage in corruption or other unlawful or unprofessional behavior (Šakočius, 2021). Such knowledge is often based on operational/intelligence information or citizen complaints referring to a police officer or group of officers (Marinković & Kesić, 2020). However, such knowledge is not sufficient to initiate disciplinary proceedings or criminal prosecution against the individual involved; thus, targeted testing is used to further verify it (Prenzler, 2006).

The results of integrity testing can serve as the basis for taking further measures and actions against police officers who have not proven their integrity. In addition to the possibility that disciplinary proceedings can be initiated and conducted against such officers, a negative test result may be used to initiate operational and evidentiary actions to gather evidence for their criminal prosecution.

## 2. MATERIALS AND METHODS

The article presents a comprehensive overview of police integrity testing in the Republic of Serbia, covering its definition, the procedures for initiation and implementation, as well as the outcomes achieved. The research employed a theoretical analysis of available scientific and professional papers in this area, along with an analysis of the content of the relevant legal acts in Serbian legislation. The primary data source for this paper was the Ministry of Internal Affairs, Internal Control Department (ICD), which maintains records of implemented police integrity tests. Based on a written request submitted to the ICD, the authors gathered a report containing the requested information regarding integrity tests conducted since their introduction into police practice in 2019, up until the date of the request (September 2024).

The research study was guided by the research questions concerning the total number of police employees tested during the specified time period, their classification by status (police officers, civil servants, or state employees) and organizational unit in which they were employed. It also addressed the total number of positive and negative test results, the actions taken by the ICD based on those results against the tested employees, as well as the outcomes achieved (the initiation of internal disciplinary proceedings, filing of criminal complaints or other outcomes). Additionally, tabular representations were used to effectively present the summarized data under analysis.

## 3. POLICE INTEGRITY TESTING IN THE SERBIAN LEGISLATIVE

Integrity testing is regulated within the Law on the Police of the Republic of Serbia (hereinafter: LOP, “Official Gazette of the RS”, no. 6/2016, 24/2018 and 87/2018), and it is further determined by the Rulebook on the Manner of Conducting an Integrity Test (hereinafter: Rulebook, “Official Gazette of RS”, no. 39/2018). According to the Law on the Police, the integrity test is one of the anti-corruption measures that the Internal Control Department (hereinafter: ICD) shall apply during the implementation of the preventive activities (Art. 230, para 1). The implementation of the integrity test falls under the competence of its specific division - the Division for Preventive Activities.

The integrity test is defined as an assessment of the employees’ reactions and actions in a simulated situation, closely resembling their actual work activities, with no prior notification to the organizational unit in which the tested individual is employed (Art. 230a, para. 1 of the LOP). Given that the legislator uses the term “employee”, it can be concluded that all individuals employed in the Ministry of Internal Affairs can be tested. In terms of the Art. 10 of the LOP, employees at the Ministry shall be: police officers, civil servants and state employees.

In accordance with the provisions of the LOP, the integrity test must be conducted in compliance with the principles of legality, fundamental human rights and freedoms, and the professional integrity and dignity of the individual being tested (Art. 230a, para. 7-8). Finally, it is important to note that activities carried out during the implementation of the integrity test do not constitute special evidentiary actions as

outlined in the Serbian Criminal Procedure Code (Art. 230a, para. 9 of the LOP).

### **3.1. THE PROCEDURE OF INITIATING AND IMPLEMENTATION OF THE INTEGRITY TEST**

To initiate the procedure for implementing the integrity test, a written and reasoned initiative from individuals authorized by law is required (Art. 4, para. 1 of the Rulebook). According to the provisions of the LOP, persons authorized by the law shall be: the minister, the Chief of Police and the Chief of the Internal Control Department (Art. 230a, para. 5). The initiative shall be based on a reasoned report that includes an analysis of employees' unlawful conduct within the Ministry, as well as an analysis of risk and exposure to corruption. It will also incorporate intelligence data, operational awareness of unlawful phenomena and events, and complaints regarding the employees' performance (Art. 230a, para. 4 of the LOP). After reviewing all the data and facts contained in the reasoning of the initiative, the Chief of the Internal Control Department shall issue a decision regarding the fulfillment of conditions for the implementation of the integrity test. Furthermore, the Chief is responsible for approving the implementation plan for the integrity test (Art. 230a, para. 6 of the LOP).

The integrity test may last up to twelve months from the date of approval of the Implementation plan (Art. 5, para. 2 of the Rulebook). The implementation plan must include detailed information about the place, time and duration of the test, including the anticipation of covert activities by police officers of the ICD who are directly conducting the integrity test and a security assessment of the test's implementation (Art. 6, para. 1, § 3-4 of the Rulebook). Police officers of the ICD are authorized to conduct the testing, and their actions during the implementation of the test must be anticipated in advance as a possibility in the prepared Implementation plan, considering that they may involve elements of unlawfulness or violations of official duty. These actions will not be considered as such only if they were necessary to achieve the purpose of conducting the integrity test, as anticipated in the plan and detailed in the report on the conducted test (Art. 7, para. 1-2 of the Rulebook). The Implementation plan must also specify the material, technical and financial resources that will be used during the implementation of the test, as well as the necessary fictitious means and documents (Art. 6, para. 1 of the Rulebook).

### **3.2. THE RESULTS OF INTEGRITY TESTING AND ITS EVIDENTIARY VALUE**

After implementation of integrity testing, the police officers of the ICD have 15 days to prepare a report detailing all activities undertaken during the testing, the reactions and actions of the tested employee, as well as a statement of the results obtained (Art. 9 of the Rulebook). According to the provisions of the LOP, a positive result means that the tested employee has demonstrated professional integrity, i.e., that during the performance of official duties, he/she did not exhibit any unlawful behavior or tendencies toward corruption. A negative result indicates that the tested employee has inclination toward unlawful or corrupt behavior; therefore, collected material may be used to initiate and conduct disciplinary proceedings against him/her (Art. 230a, para. 11).

The legislator has adopted the stance that the purpose of applying integrity testing is to effectively identify police employees who are prone to non-compliance with regulations or ethical standards. The goal is to initiate and conduct internal disciplinary measures against them, rather than to gather evidence for use in criminal proceedings (Drozd et al., 2021). This stance is further supported with the argument often emphasized regarding the application of integrity testing: namely, that it has a provocative character. In line with the jurisprudence of the European Court of Human Rights, integrity tests for police employees must not involve any procedure or action that could be considered provocative (Šakočius, 2021, p. 304). Corrupt or other unlawful behavior of the tested employee should not result from the significant pressures created by the test (Prenzler, 2006, p. 396).

Accepting the results of integrity testing as evidence in criminal proceedings would require amendments to the provisions of the Serbian Criminal Procedure Code to explicitly recognize integrity testing as an evidentiary action. Given that such a solution is not incorporated into the current procedural law, the results of integrity testing may serve only as one of several indicators contributing to the establishment of reasonable suspicion that the tested individual has committed a specific criminal offense subject to ex officio prosecution.

On a practical level, if the integrity test report indicates a negative result for the employee being tested, it will be submitted to the competent public prosecutor, who may order measures and actions to be taken against him/her, in line with the provisions of the criminal procedural law (Art. 11, para. 2 of the Rulebook). This means that police officers of the ICD can take further appropriate operational measures and actions toward the tested employee. Once the conditions prescribed by procedural law are fulfilled, evidentiary actions may be undertaken, and their results can be admitted as evidence in criminal proceedings.

#### 4. RESEARCH ON INTEGRITY TESTING AND ITS OUTCOMES IN THE SERBIAN POLICE PRACTICE

For the purpose of analyzing the integrity tests conducted in the Serbian police context, a written request was delivered to the ICD, asking for information regarding the number of integrity tests conducted since their implementation in 2019, up to the date of the request, along with the results of these tests. The ICD responded with a Report providing the requested information (05 number: 07-2-545/24-6, dated October 3, 2024).

According to the Report of the ICD, the total number of tests conducted from 2019 to September 2024 is 104, of which 74 had a positive result, while 30 had a negative result (Source: Table 1). In all cases, integrity tests were conducted on police officers, i.e., authorized official persons, who were assigned within the Uniformed police directorate and Traffic police directorate.

The outcomes of the integrity testing are presented in Source: Table 2. Following the testing results, police officers of the ICD initiated criminalistics-operational processing in 17 cases, concerning 26 police officers out of a total of 30 tested officers who had negative integrity test results. The criminalistics-operational processing was initiated to apply special evidentiary actions and properly gather evidence to prove the commission of criminal offenses. In certain cases, the implementation of special evidentiary actions was initiated within one year, but the evidence that could be used in criminal proceedings was gathered in the following year, at which point a criminal complaint was also filed against the tested employees for criminal offenses related to corruption.

Table 1. Positive and negative results of the integrity testing

Year	The number of police officers tested	Positive results	Negative results
2019	5	4	1
2020	17	12	5
2021	19	17	2
2022	21	14	7
2023	24	18	6
2024 (up to September)	18	9	9
<b>Total</b>	<b>104</b>	<b>74</b>	<b>30</b>

Source: Report of the ICD of the Ministry of Interior of the Republic of Serbia

Table 2. The outcomes of the integrity testing

Year	Criminalistics-operational processing initiated	Police officers included	Criminal complaints filed	Police officers included	Disciplinary proceedings initiated
2019	1	1	/	/	/
2020	4	7	3	2	/
2021	2	5	/	/	/
2022	5	6	3	2	2
2023	2	3	/	/	/
2024 (up to September)	3	4	9	1	/
<b>Total</b>	<b>17</b>	<b>26</b>	<b>15</b>	<b>5</b>	<b>2</b>

Source: Report of the ICD of the Ministry of Interior of the Republic of Serbia

The results of the integrity testing revealed the presence of criminal offenses related to corruption, specifically those defined in the Criminal Code of the Republic of Serbia, (hereinafter: CC, "Official Gazette of the RS", no. 85/2005, 88/2005 – corr., 107/2005 – corr., 72/2009, 111/2009, 121/2012, 104/2013, 108/2014, 94/2016, and 35/2019) as: 1) Abuse of Office and 2) Accepting Bribes. This led to the filing of 15 criminal complaints against five police officers.

Considering the first offense, police officers, as public officials, may commit it by abusing their office or authority, exceeding the limits of their official authority, failing to perform their official duties, and thereby

obtaining a benefit for themselves or for another individual or legal entity, causing harm to a third party, or seriously violating the rights of another (Art. 359, para.1 of the CC).

With regard to the offense of bribery, as stipulated in Article 367 of the CC, there are several forms, which may vary depending on the official actions in connection with which the bribe is demanded or accepted. A shared characteristic among all these forms is that an official demands or accepts a gift/other benefit, or the promise of such, either for personal gain or on behalf of another individual. This can be done directly or through intermediaries. A police officer, as an official, may demand and accept bribes to perform a legal official act or illegal official act, as well as after performing or failure to perform an official in relation thereto (Vujičić, 2019). A more serious form will exist if an official commits the offence in respect of uncovering of a criminal offence, instigating or conducting criminal proceedings, pronouncement or enforcement of criminal sanction (Art. 367, para. 3 of the CC).

Research has also shown that, in two cases with negative results, following criminalistics-operational processing, it was proposed that the immediate supervisor of the tested officer initiate disciplinary proceedings for severe violations of official duty. These involve severe violations of official duty, as defined in Art. 207 of the LOP, such as: 1) Behavior detrimental to the Ministry's reputation (Para. 1, §7); 2) Illicit, conscienceless, negligent work or failure to perform action for which the employee is authorized, which caused or could have caused harm or illegality (Para. 1, §16); and 3) Negative result of the integrity test (Para. 1, §24).

## 5. DISCUSSION

The finding that integrity testing was focused solely on police officers within the Uniformed Police Directorate and Traffic Police Directorate can be explained by the fact that their work positions and roles within the organizational structure, as well as their areas of work, provide greater opportunities and chances for corruption or other forms of unlawful behavior (Kesić, 2017). These are individuals who conduct police tasks in the capacity of authorized official persons, applying police powers and actions, while also maintaining frequent contact with citizens.

The focus of integrity testing on officers in the Uniformed and Traffic Police can also be explained by practical reasons. It cannot be denied that integrity testing, based on the criteria mentioned above, would also be beneficial in other areas of work, such as the Border Police, Criminal Police, Administrative Affairs, and others. However, implementing simulated situations in these areas could be challenging in practice, and in some cases, they might be detected by the police officers being tested. In certain instances, the integrity test could not be conducted for legal reasons.

For example, citizens may indicate in their complaints that valuable items (e.g., art paintings, expensive jewelry, etc.) went missing during a crime scene investigation in their apartments. Designing a simulated situation that aligns with the regular activities of the police officers conducting a crime scene investigation may not be difficult, but challenges can arise during its implementation. The reason for this is that it is necessary to simulate the perpetration of a criminal offense (event) and report it to the police dispatcher, who will then inform the members of the crime scene investigative team. Subsequently, the public prosecutor must be consulted to authorize the delegation of the crime scene investigation to the police. Such a simulated situation, in addition to requiring significant material and technical resources (e.g., a fictitious apartment and the setup of audio-visual recording equipment), would necessitate fabricating a criminal offense or event and reporting it, which could place the police officers of the ICD in a zone of criminal liability. More precisely, they would be committing the offence of False Reporting, as stipulated under Article 334, paragraph 4 of the CC.

The conducted research has shown that integrity testing has proven to be a significant investigative tool for detecting corruption and other forms of unlawful behavior by police officers, as 28.8% of the tested officers failed to demonstrate their professional integrity. Depending on whether the tested police officers exhibited an inclination toward corruption or other forms of unlawful behavior during the performance of their official duties, several courses of action may be considered in cases where the test results are negative.

The usual practice of the ICD is to forward the Report on the integrity testing to the competent public prosecutor, which has been done in the majority of cases. In 56.6% of cases where the result was negative, criminalistics-operational processing was initiated, meaning that operational and evidentiary measures and actions were taken to establish facts and data that could serve as proof for criminal prosecution. However, the outcomes of the conducted criminalistics-operational processing show that proving the corrupt criminal offenses identified during the implementation of the integrity testing was not always successful.

For instance, out of the 26 police officers involved in the processing, criminal complaints were filed against only five of them. The possible explanation for the mentioned outcome may be related to the fact that the application of special evidentiary actions is time-limited. Consequently, it is possible that during their implementation, the police officers of the ICD were unable to gather the evidence that could lead to the prosecution of the police officers with a negative test result.

The research finding that disciplinary proceedings were initiated against only two police officers should primarily be considered in the context of the provisions of the LOP and the Rulebook. Under the provisions of the LOP, the initiation of disciplinary proceedings for severe violations of official duty is subject to a statute of limitations. If disciplinary proceedings are not initiated within a year of the commission of the violations, it is no longer possible to launch them (Art. 215, para 1 of the LOP). In addition, provisions of the Rulebook stipulate that the Report on the integrity testing with a positive result must be forwarded to the Head of the organizational unit where the individual undergoing testing is employed within 30 days from the completion of testing (Art. 10, para. 2 of the Rulebook). In the case of a negative test result, the submission of the Report may be postponed if further action is taken against the tested employee by order of the on-duty public prosecutor (Article 11, paragraph 2 of the Rulebook). In this regard, it can be concluded that the postponement of disciplinary proceedings against police officers with negative test results was made to ensure confidentiality and the successful completion of the ongoing criminalistics-operational processing.

## 6. CONCLUSION

The research findings demonstrate that integrity testing can reveal corrupt criminal offenses by police officers; however, their criminal prosecution is significantly limited. A negative test result can only serve as the basis for initiating disciplinary proceedings against the tested officer. Police officers of the ICD have the possibility to notify the competent public prosecutor about the negative test result of specific police officers, who can approve initiation of the criminalistics-operational processing against them. This means that further operational and evidentiary actions, including special evidentiary measures, are needed in an effort to prove the corrupt behavior exhibited by police officers during their integrity testing.

However, the fact that processing is conducted following a negative test result does not guarantee that it will lead to the initiation of criminal proceedings. For example, the tested police officer may not repeat the same corrupt or unlawful behavior during the processing, or may be reassigned to a different position that does not provide significant opportunities for such behavior. As a result, police officers who fail to demonstrate their professional integrity may avoid criminal prosecution and, in some cases, even the initiation of disciplinary proceedings.

To ensure the successful criminal prosecution of police officers who have exhibited corrupt or other unlawful behavior during integrity testing, it is essential to explore the possibility of incorporating the results of these tests as evidence in criminal proceedings. One possible legal solution could be the one suggested by Marinković (2020), where targeted integrity testing is prescribed as a third form within the evidentiary action of Simulated Deals, with the ICD being the authorized proponent for its implementation.

The research findings demonstrate that integrity testing in the Republic of Serbia serves as a valuable investigative tool and a unique opportunity to detect and document corrupt and other unlawful behaviors among police officers. However, at this stage, it does not produce outcomes that can be considered satisfactory, indicating a need for further discussion and research on potential amendments and supplements to the existing legislative framework.

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# ECONOMIC AND SOCIAL DEVELOPMENT OF THE REPUBLIC OF SERBIA THROUGH THE PRISM OF RELATIONS WITH THE UNITED STATES AND NATO

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**Abstract:** The purpose of the paper is to use an adequate methodology to show the importance of relations between the Republic of Serbia and the United States and NATO for the development of positive social norms, as well as the economic development of the Republic of Serbia through a decades-long relationship marked by the ups and downs of cooperation if we take into account the relations of the former Yugoslavia, of which the Republic of Serbia is the legal successor. The paper aims to confirm the hypothesis that the economic, security, and social development of Serbia in the last 20 years is related to the rise of cooperation with the United States and NATO, as was the case with the former Yugoslavia after the break with the Soviet Union in 1948 and the signing of the agreement with the United States. Agreements, protocols, treaties, and other acts signed and implemented between Serbia on the one hand and the United States and NATO on the other, especially those that have elements of the Petersburg Declaration, have significantly contributed to the status of a trusted partner of Serbia when it comes to regional security and stability, which, along with its participation in peacekeeping missions, played a crucial role in being characterized completely differently after the wars of the 1990s compared to the end of the twentieth century. That is why it has made all the progress in the face of international sanctions. Characterized as a partner by NATO, the Republic of Serbia has become a leader in attracting foreign direct investments in the Western Balkans, especially those from NATO member states and the largest exporter of products and services in the field of IT industry to the backbone of NATO, the United States of America from this area. At the end of the paper, the authors, after confirming the given hypothesis, present a proposal of measures and actions that the Republic of Serbia should take in the future to bring to an end the Euro-Atlantic integration with adequate relations with NATO and the members of the alliance at the bilateral level, with a special emphasis on membership in the European Union, which is contained in the most important legislative and strategic documents as the highest state goal.

**Keywords:** NATO, Security, Cooperation, Western Balkans, Serbia.

**Field:** Social Sciences (Politics)

## 1. INTRODUCTION

NATO was created as a response of Western democracies to the growing threat of the spread of communism and repression by Soviet troops in the countries of Eastern Europe that came under Moscow's sphere of influence after the end of World War II. The Iron Curtain must have taken into account the distrust of Moscow created by its violation of the 1934 treaty with Poland, as well as the massacre of prominent highly educated Poles during its withdrawal from the east of that country. To this should be added the secret protocols on the partition of Poland, which were part of the agreements with Nazi Germany that were negotiated while at the same time negotiations were being held with Great Britain and France on the possibility of joint action against Germany (Watson, 2000). With these actions, the Kremlin has shown itself to be a party that does not respect the signed agreements on the one hand, but also as a party that has territorial claims to other states, which is in direct contradiction with the basic social and political principles of the countries that founded NATO.

After the Second World War, Yugoslavia was in a very difficult situation, devastated and devastated, with human and demographic losses of two million people, of which the number of dead and displaced was almost identical (Kočović, 1985). So devastated, with the new communist government replacing the royal family who had fled to London on the one hand, and the decisive help of the Red Army in liberating them from the Nazi occupiers on the other, as well as the division of Europe between the victorious powers and politically, it was very fragile. In such circumstances, official Moscow believed that Yugoslavia should fall under its sphere of influence and sent clear signals to the leadership in Belgrade. The refusal to place Yugoslavia under Moscow's control led to growing tensions, which were formally reflected in Moscow's accusations that Yugoslavia was pursuing an anti-Soviet policy and developing socialism in an unacceptable way (Krlježa, 1969). More recently, there have been interpretations that Moscow's pressure

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was in order to prevent Yugoslavia's secret plans to lead an alliance that would still consist of Macedonia and Greece independent of Moscow in the pre-composition of Europe, Yugoslavia with the help of Bulgaria (Perović, 2007). In addition to the requirements related to the industrial production of products intended for the Soviet Union, Moscow believed that it was necessary to install Soviet intelligence services in Yugoslav institutions, which would practically take over part of its sovereignty. The rejection of all the demands delivered by Moscow resulted in economic sanctions and the threat of military intervention through massive military exercises on the borders, primarily Serbian-Bulgarian and Serbian-Romanian, with political pressure on neighboring countries to sever diplomatic relations with Yugoslavia, as well as Albania, which altogether made up the years known as the Cominform period (Mihaljević, 2017). The Yugoslav situation was further aggravated by an unprecedented drought that caused a lack of basic necessities of life, which, in addition to the situation described above, threatened to bring the country that had just emerged from the war to its knees. In such a situation, Yugoslavia turned to the West and, through a series of bilateral talks and agreements, found an understanding of the situation and much-needed help from the United States. Such a sudden rapprochement of Yugoslavia with the West was an unprecedented phenomenon in Cold War-coloured Europe, which was reflected in the exclusive cooperation of a communist state with a country of opposite, Western ideological orientation, and this cooperation proved to be very profitable for Yugoslavia (Bogetić, 2018).

## **2. THE DEVELOPMENT OF THE YUGOSLAV ECONOMY AND SOCIETY THANKS TO THE POLICY OF COOPERATION WITH THE UNITED STATES**

Immediately after the cooling of relations between the USSR and Yugoslavia, and the introduction of an embargo by Moscow, the United States allowed greater exports of goods from Yugoslavia to its market in order to preserve the economy of Yugoslavia, which resulted in an increase of 100 percent for the period 1948-1949 alone, while exports increased as much as three times by 1955 (Tomanić, Rakonjac, Miletić, 2024).

Yugoslavia received the first large tranche of financial assistance as early as 1950 through a long-term loan of 50 million dollars, which was preceded by an agreement signed in Washington in 1948 by which Yugoslavia undertook to compensate American citizens and companies who suffered damage due to the nationalization of property, whereby the agreement even protected the rights of the American side to trademarks, i.e. logos and company names (Official Gazette of the Presidium of the National Assembly of the Federal Republic of Yugoslavia, 1948). In order to promote domestic production and sales, with the approval of the United States, Yugoslavia in 1951 abolished the forced purchase of grain and poultry and practically introduced the liberalization of a part of the market following the example of the West, allowing small producers to sell their food products, as well as those related to construction, directly in rural shops (Bekić, 1988).

The economic development of Yugoslavia began with the Second Five-Year Plan prepared in 1956, which envisaged that the money obtained from abroad through donations and loans would be used to increase the production of consumer goods, which would increase the utilization of economic capacities, which led to the growth of national income in the period 1957-1959 at an annual rate of 13.3 percent and an increase in industrial production by 2.4 times when comparing 1959 and 1952 (Dobrijević, 2016). The growth of the 1950-1960 standard is also reflected in the number of newly registered privately owned cars, which increased by as much as 7 times compared to the previous period (Hyder, 2011). The number of employees has continued to grow in parallel with the development of diplomatic relations with the United States. In 1948, Yugoslavia had 7,255,120 employees, in 1953 7,848,857, while in 1961 this figure exceeded 9 million (Rakicević, 1968).

This development of the situation was preceded by intensive diplomatic activity of Yugoslavia with the United States of America.

Along with sending financial and material aid to Yugoslavia, the United States also worked on the stability of the entire Balkan region. This is reflected primarily in their key role in the development of relations between Yugoslavia and Greece, especially after Greece and Turkey joined NATO in 1950 in the phase of consultative cooperation (Milikić, 2007). Thus, by practically creating stability in the region through the development of diplomatic relations, the United States directly influenced the defense of Greece, because by strengthening the Yugoslav Army with its donations as a reward for the aforementioned Yugoslav role, it effectively protected the Vardar corridor. In order to strengthen the Yugoslav Army, the United States concluded the Military Assistance Treaty, which was signed on November 14, 1951, which included Yugoslavia in the system of military assistance to Western European countries developed by the United States in late 1949 to strengthen the defense capabilities of its allies (Dimitrijević, 2000). This agreement

is considered a key milestone in relations between the two countries during this period. To this should be added the acceptance of Yugoslavia for the establishment by America of a special communication system on its territory that would immediately inform the United States in the event of a Soviet attack on Yugoslavia (Jakovina, 2003). Further diplomatic activity, under the initiative of the United States, resulted in the signing of the Ankara Treaty of Yugoslavia, Greece and Turkey on 28 March. February 1953, which was practically upgraded by military cooperation and became the Balkan Agreement in August 1954. Although there are controversial opinions as to whether or not this agreement represented Yugoslavia's entry into NATO without formal signing, some of the facts must not be ignored. First of all, all three sides believed that they could be threatened by the USSR. Turkey, first of all, as a state that has a long demarcation line with the USSR itself, Yugoslavia, which constantly suffers threats from Moscow and is afraid of an attack through one of the Soviet satellite states, and Greece, which counts on the help of Yugoslavia if the USSR attempts to invade it through Bulgaria (Vujačić, 2010). Thus, NATO member states sign a security pact with an independent state in a situation where all parties have one common enemy, which at that time was also the main enemy of NATO. NATO itself gets stability and protection of the shores of the Mediterranean from Turkey to Portugal, which is still the main motive of NATO in this region (Simić, 2010).

According to the above, the signed diplomatic agreements and the relaxation of relations thanks to the cooperation between Belgrade and Washington resulted in the supply of Yugoslavia with military equipment necessary to deter Soviet aggression, which includes 600 jet planes, 20,000 vehicles, 1,000 tanks and 1,000 artillery weapons on the one hand, but also the necessary food to dry the people in the years and significant credit funds to start the economy in the devastated country, which, according to statistical data, is the same as the necessary food to dry the people in the years and significant credit funds to start the economy in the devastated country, resulted in a significant increase in the number of jobs and an increase in living standards (Ranković, 2021). This is best seen by comparing the national income per capita, which in 1953 was 250 dollars, in 1962 it was 480 dollars, and in 1965 it was 570 dollars (Krlježa, 1969).

### **3. THE DEVELOPMENT OF THE SERBIAN ECONOMY IN THE CONTEXT OF RELATIONS WITH THE UNITED STATES AND NATO AFTER THE DEMOCRATIC CHANGES IN SERBIA IN 2000**

Serbia entered the democratic change of government in 2000 with an extremely high unemployment rate of as many as 769,000 people, which remained a trend for the next 14 years, i.e. until 2014, when that number slightly decreased to 741,000 (Štrbac, 2015). All this time, the new representatives of the government failed to consolidate finances and the economy or to position themselves diplomatically in relation to the United States. The rotten compromises in building a broad political coalition that included at least Euro-skeptic and generally anti-Western political parties came at a high price. Slowed reforms in the security sector had the murder of Prime Minister Djindjić as a direct consequence (Životić, Obradović, 2023). After that tragic event, poorly implemented privatization of former state-owned enterprises with no increase in the productivity of existing jobs, bad economic policy, and loss of old and non-conquest of new markets led to a significant decline in the number of employees (Arsić, 2014). These omissions led to alarming unemployment in April 2012 of as much as 26.1 percent and a very low average net salary of 41,664 dinars (FREN, 2020). In the same year, according to a 2018 report by the European Parliament, exports of goods and services from Serbia to the United States were below \$100 million (Demostat, 2018).

In such a situation with the current inflation, Serbia lacked a favourable economic and political climate to attract foreign investments, but also to conclude strategic agreements with the United States and NATO.

Meanwhile, exports of goods from Serbia to the United States in 2023 were \$556 million, or approximately 7 times higher than in 2012, with almost 100% coverage of imports. Compared to 2009, when it covered 49 percent of imports, exports to the European Union reached 86 percent in 2023 (EU in Serbia, 2024). When it comes to services, the largest growth is recorded in the export of IT services to the United States, which amounts to more than \$1.2 billion in 2022, with a tendency to grow for 2024 (Bukvić, 2023). It is important to note that today American companies in Serbia employ more than 30,000 people (Fonet, 2024). By comparing investments and donations in Serbia in 2000-2012 and 2012-2024, we can conclude that the first period was marked by larger donations, while the second period, with much lower donations, is characterized by significant investment progress, job creation and infrastructure investments, the most important of which is the so-called Morava Corridor.

We can conclude that the U.S. administration, in relation to Serbia, has switched from donations to capital investments, primarily due to the improvement of diplomatic relations, which is reflected in the

signing of the SOFA agreement.

By intensifying political dialogue with the United States and NATO, Serbia is sending a signal of a positive business and security environment. In addition to security implications, cooperation with NATO takes place in the field of NATO's Science for Peace and Security program, which also has its commercial application. During 2023, scientists from Serbia participated in a total of 14 projects under the auspices of the NATO Science for Peace and Security, while the scientists from North Macedonia are currently engaged in 6 projects (EWB, 2024). Cooperation with NATO has a positive impact on the standardization of cyberspace. As the scope of integration increases, the need to establish common criteria (CC) as a standard established through collaboration between multiple nations, CC provides a unified framework for assessing and comparing the security capabilities of IT solutions (CCLAB, 2024). In 2019, the second cycle of IPAP with NATO ended. This cooperation is essential because its effects are far broader than military issues but concern a more comprehensive approach. The Partnership's Individual Action Plan (IPAP) covers political and security issues, domestic politics and economics, defense and military affairs, public diplomacy, scientific cooperation, crisis and emergency management, and the protection of classified information. Thus, the scope of cooperation through IPAP includes areas such as regional cooperation, human rights, rule of law, counterterrorism, cyber defense, economic reforms, defense planning, defense policy, contribution to security through scientific cooperation. A very wide range of cooperation dealing with areas of importance for the daily lives of Serbian citizens. In the era of digitalization and increasing use of the Internet, as well as information systems such as the e-Government service, they require special attention and work on the protection and defense of these systems.

The Washington Agreement between Serbia and Kosovo, entitled "Economic Normalization between Serbia and Kosovo," states in point 9 that "Both sides will prohibit the use of 5G equipment coming from unreliable suppliers in their network infrastructure. Where such equipment already exists, both parties undertake to remove it in a timely manner and to take other necessary steps." The indirect implication of this agreement is the ban on China's 5G network, which is why Serbia remains an attractive destination for investments in the IT sector from the West.

Serbia signed a Strategic Partnership with the United States in the field of energy on September 18, 2024, which created the preconditions for improving energy security and green transition. The role of this agreement is based on energy diversification of supply sources, the establishment of reliable supply chains, and attracting foreign direct investment in the energy sector. Just a few weeks later, a U.S.-South Korean consortium signed a contract with Serbia for the construction of a 1GwT self-balancing solar power plant.

Serbia's cooperation with the U.S. and NATO is the so-called "U.S. Cooperation Agreement." The "NATO effect", which is described as a comprehensive trust in the business environment in relation to political, security, and economic risks. The increasing share of digital technologies and businesses in the cyber domain will require implementing cybersecurity measures.

#### 4. CONCLUSION

Over the past 100 years, Serbia has risen like a phoenix from the ashes several times. In the two most complex situations, both of these times, the U.S. and its partners have been instrumental in raising social standards and building society. The paper presented only some of the most important agreements between Serbia on the one hand and the USA and NATO on the other, which with their political implications contributed to the well-being of the citizens of Serbia in every sense, which justified the hypothesis from the beginning of the paper. It has been proven that the overall prosperity of the Republic of Serbia is directly correlated with positive cooperation and building partnership relations with the leader of the democratic world, the United States of America, and its partners. Following this, the author's recommendation is to further deepen relations between the Republic of Serbia and Western partners with the aim of full membership in the European Union and better partnership relations with NATO to preserve regional security and prevent crises from third parties but also to continue building a democratic society, which the citizens of Serbia have been striving for since liberation from Ottoman rule and its final independence. Furthermore, Serbia must strive for an overall strategic partnership with the USA, where the previously described form of partnership in the energy sector should be taken as a starting point and not an endpoint. The complete harmonization of the foreign and security policy with the European Union should be a parallel process in relation to the strengthening of relations with the USA and should be implemented as soon as possible so that the Republic of Serbia would fully identify with the group of the most technologically developed countries that are also the bearers of democracy and respect for human rights on Earth. In the end, these proposals are not an expression of the author's pressure on

decision-makers in the Republic of Serbia, but rather an appeal to respect the most important strategic documents adopted by the National Assembly and the Government of the Republic of Serbia, starting with the Constitution of the Republic of Serbia through a series of strategies and action plans.

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# EXTRACURRICULAR ACTIVITIES OF MUSICALLY GIFTED STUDENTS: PARENTS' PERCEPTION

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**Abstract:** The focus of this research is aimed at looking at the perceptions of parents of musically gifted students about their children's extracurricular activities and determining the differences between the parents' gender and their perception about their children's extracurricular activities. A total of 95 parents of musically gifted students participated. The results show that parents of musically gifted students are generally satisfied with how much their children are involved in extracurricular activities, while mothers are more satisfied with the level of involvement of their children in extracurricular activities at school. Mothers more positively evaluate the competence of teachers for the organization of extracurricular activities that they organize in the context of students' giftedness, and their opinions are more positive regarding the variety of extracurricular activities that teachers and professional associates organize, which do not concern students' musical giftedness. There are no statistically significant differences between the gender of parents and their opinion about the variety of extracurricular activities that teachers and professional associates organize in the context of giftedness.

**Keywords:** *extracurricular activities, parents, musically gifted students, elementary school, cooperation.*

**Field:** Social Sciences and Humanities

## 1. INTRODUCTION

Educational work, apart from teaching, includes other forms of organized work with students, one of which is extracurricular activities (Zakon o osnovnom obrazovanju i vaspitanju, 2025). „Due to the fact that extracurricular activities are an inseparable part of education, participation in these activities have been made compulsory in many countries in order to increase the quality in education“ (Acar & Gündüz, 2017: 902). In the Strategy for the Development of Education in the Republic of Serbia until 2030 (Strategija razvoja obrazovanja i vaspitanja u Republici Srbiji do 2030. godine, 2021), the importance of extracurricular activities is recognized both in pre-university and university education, with a focus on providing modern teaching tools and didactic systems for their implementation, as well as developing a system for their evaluation. Extracurricular activities are the subject of numerous researches that confirm the importance of their implementation for the purpose of comprehensive student development (Mlinarević & Brust Nemet, 2012; Caput Jogunica & Barić, 2015; Muratović & Musić, 2017; Vidulin & Papak, 2018; Meadows, 2019; King, et al., 2020; Miletić et al., 2024). Also, „extracurricular activities are rather interdisciplinary and have a strong cognitive, educational and developmental potential“ (Androshchuk, et al., 2020: 62). In order to improve the educational role of the school, to respect the individual interests of the students and to spend their free time purposefully, the school is obliged to implement extracurricular activities in various fields (science, technology, culture, art, media and sports), both for elementary school students and for students of the elementary music school (Zakon o osnovnom obrazovanju i vaspitanju, 2025). Although they may be different, they form an important part of every school and represent an important experience for developing the potential of each student. However, research shows that „in modern curricula in numerous educational systems, the most attention is given to the mother tongue and mathematics, because those areas are the focus of national tests. This reduces the number of classes and content from other fields, including natural sciences“ (Maksimović, 2024: 118). Also, „although teachers are most advocating for giving special attention to gifted children at school, gifted children, and even more so their parents, are very critical of what the school provides them“ (Maksić, 2012: 379). As the organization and realization of extracurricular activities of the school is important, as well as the relationship and involvement of parents, we wanted to examine the opinions of parents about the extracurricular activities of their musically gifted children.

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## 2. METHODOLOGY

With our research, we want to look at the perception of the parents of musically gifted students about their children's extracurricular activities and to determine the differences between the parents' gender and the perception of the children's extracurricular activities. The research tasks are: to survey the parents of musically gifted students as to how satisfied they are with their children's involvement in the school's extracurricular activities; to survey the parents of musically gifted students to what extent, in their opinion, teachers are competent in the organization of extracurricular activities that they organize in the context of the giftedness of students; to question the parents of musically gifted students about the variety of extracurricular activities organized by teachers and professional associates that do not concern the musical giftedness of students; examine which activities parents would like to be involved in more often; to survey the parents of musically gifted students about the variety of extracurricular activities that teachers and professional associates organize in the context of the student's giftedness; to determine whether there are statistically significant differences between the gender of the parents of musically gifted students and the perception of their children's extracurricular activities. The sample consisted of parents of musically gifted students. This research is part of a wider research that examined the school aspect of parents of musically gifted students. A total of 95 parents of musically gifted students participated, 35.8% fathers and 64.2% mothers. We used a descriptive method and technique of surveying and scaling. Using tangential literature from the researched area, we created an instrument. We processed the obtained data in the SPSS package.

## 3. RESULTS

The results show that parents of musically gifted students are generally satisfied with how much their children are involved in extracurricular activities at school ( $M=4.19$ ;  $SD=0.689$ ), but there is certainly room for improvement in this important aspect.

Mothers are more satisfied with the degree of involvement of their musically gifted children in school extracurricular activities ( $t=-3.801$ ;  $df=93$ ;  $p<0.05$ ), unlike fathers (Table 1).

Table 1. Difference between gender and answers of parents of musically gifted students on how satisfied they are with their children's involvement in school extracurricular activities

Satisfaction of parents of musically gifted students with their children's involvement in school extracurricular activities	Gender of parents	N	M	SD	t	df	p
	Male	34	3.85	.702			
	Female	61	4.38	.610	-3.801	93	0.000

Source: Authors

We wanted to examine the parents of musically gifted students to what extent, in their opinion, teachers are competent in organizing the extracurricular activities they organize in the context of the student's giftedness. The obtained results show that parents' answers are mostly positively oriented towards the competence of teachers for the organization of extracurricular activities that they organize in the context of students' giftedness ( $M=4.41$ ;  $SD=0.692$ ).

Mothers more positively evaluate the competence of teachers for the organization of extracurricular activities that they organize in the context of giftedness of students ( $t=-3.232$ ;  $df=93$ ;  $p<0.05$ ), in contrast to fathers (Table 2).

Table 2. Difference between gender and parents' answers about teachers' competences for the organization of extracurricular activities that they organize in the context of student giftedness

Opinions of parents of musically gifted students regarding the extent to which teachers are competent in organizing the extracurricular activities they organize in the context of the student's giftedness	Gender of parents	N	M	SD	t	df	p
	Male	34	4.12	.769			
	Female	61	4.57	.590	-3.232	93	0.002

Source: Authors

We surveyed the parents of musically gifted students about the variety of extracurricular activities organized by teachers and professional associates that are not related to the students' musical giftedness. The results show that parents' opinions are not sufficiently positively oriented towards the variety of extracurricular activities organized by teachers and professional associates that are not related to the students' musical giftedness (M=3.73; SD=0.831).

Mothers' opinions are more positive regarding the variety of extracurricular activities organized by teachers and professional associates that do not concern the students' musical giftedness (t= -3.767; df=93; p<0.05), in contrast to fathers (Table 3).

Table 3. Difference between gender and parents' answers about the variety of extracurricular activities organized by teachers and professional assistants that do not concern the students' musical giftedness

The variety of extracurricular activities organized by teachers and professional associates that are not related to students' musical giftedness	Gender of parents	N	M	SD	t	df	p
	Male	34	3.32	.684			
	Female	61	3.95	.825	-3.767	93	0.000

Source: Authors

When asked which activities they would like to be included more often in the context of extracurricular activities, the largest number of parents answered that they would like to organize more activities such as different contents of workshops and games for children, as well as greater opportunities for extracurricular activities in which parents could get involved.

Questioning the parents of musically gifted students about the variety of extracurricular activities that teachers and professional associates organize in the context of the student's giftedness was another research task. The obtained results show that parents' opinions are not sufficiently positively oriented about the variety of extracurricular activities that teachers and professional associates organize in the context of student giftedness (M=3.85; SD=0.838).

Our results show that there are no statistically significant differences between parents' gender and their opinion on the variety of extracurricular activities that teachers and professional associates organize in the context of student giftedness (Table 4).

Table 4. Difference between gender and parents' answers about the variety of extracurricular activities that teachers and professional associates organize in the context of student giftedness

The variety of extracurricular activities organized by teachers and professional associates in the context of student giftedness	Gender of parents	N	M	SD	t	df	p
	Male	34	3.65	.884			
	Female	61	3.97	.795	-1.807	93	0.074

Source: Authors

#### 4. DISCUSSION

Starting from the fact that „the positive effects that extracurricular activities have on students are behavior, better grades, school completion, positive aspects to become successful adults, and a social aspect” (Massoni, 2011: 84), in this part of the paper, we will present a discussion of the results on the perception of the parents of musically gifted students about their children’s extracurricular activities and the differences between the parents’ gender and the perception of their children’s extracurricular activities. Parents of musically gifted students are generally satisfied with their children’s involvement in school extracurricular activities. Mothers are more satisfied with the level of their children’s involvement in school extracurricular activities, unlike fathers. Parents’ responses are mostly positively oriented towards the competence of teachers for the organization of extracurricular activities that they organize in the context of the giftedness of students. Mothers more positively evaluate the competence of teachers for the organization of extracurricular activities that they organize in the context of giftedness of students. For example, the results of the research, the sample of which included boarding school teachers, they answer that during their education they acquired certain knowledge and skills about the organization of free time, but that they lack certain skills for the implementation of certain sections (Milanović, 2024a). Also, the results of this research show that the largest number of boarding school teachers believe that faculties that educate pedagogical workers, if they don’t have them, should introduce a subject that concerns the aspect of leisure time pedagogy (Milanović, 2024a). Parents’ opinions are not sufficiently positively oriented towards the variety of extracurricular activities organized by teachers and professional associates that do not concern the students’ musical giftedness, while mothers’ opinions are more positive regarding the variety of extracurricular activities organized by teachers and professional associates that do not concern the students’ musical giftedness. „Extracurricular activities at school are the space where it is easiest to reach students, their needs, desires and aspirations” (Martinčević, 2010: 22), whereby teachers and professional associates should pay more attention to these activities in pedagogical work with gifted students and devote themselves to the aspect of diversity. When asked which activities they would like to be included more often in the context of extracurricular activities, the answers of parents of musically gifted students are that they would like to see more activities organized, such as workshops, games for children, as well as greater opportunities for extracurricular activities in which parents could get involved. In this context, the results of the research show that both teachers and parents of elementary school students perceive the importance and pedagogical value of the play (Milanović, 2024b). The results of the research show different creative workshops that the students liked and in which they participate with the educators, also, the students are very satisfied with the creative workshops that they implement with the educators in the boarding school (Milanović & Mijajlović, 2024). The results of the research that examined the opinions of musically gifted students, teachers and educators about STEM activities implemented by future educators and teachers, show extremely positive opinions and impressions of musically gifted students, educators and teachers (Miletić et al., 2024). The opinion of parents is not sufficiently positively oriented about the variety of extracurricular activities that teachers and professional associates organize in the context of the giftedness of students. „The results demonstrated that, for teacher mentors, it is more important to encourage musically gifted students to attend additional curricular and extracurricular activities” (Svalina et al., 2021: 143). Our results show that there are no statistically significant differences between parents’ gender and their opinion about the variety of extracurricular activities that teachers and professional associates organize in the context of student giftedness.

#### 5. CONCLUSION

We tried to present the perception of parents of musically gifted students about their children’s extracurricular activities and to determine the differences between parents’ gender and the perception of their children’s extracurricular activities. Considering that „extracurricular activities are said to be integrative in nature because they tie together many areas of knowledge and experience” (Lunenburg, 2010: 3), it is necessary to nurture them in the process of upbringing and education and in musically gifted students. Based on the findings of the parents of musically gifted students, the extracurricular activities that teachers and professional associates organize should be improved, more diverse and take a more honored place in the pedagogical work with musically gifted students. Future research could focus on the application of an experimental program that would examine the effects of applying certain extracurricular activities on the success of musically gifted students, but also on their communication skills, critical thinking and creativity.

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# THE ROLE OF THE POLICE AND THE PUBLIC PROSECUTOR'S OFFICE IN THE PREVENTION OF DOMESTIC VIOLENCE IN SERBIA

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**Abstract:** By ratifying the Istanbul Convention, Serbia has committed itself to ensuring that the police are adequately involved in the prevention of domestic violence as soon as such cases occur. Unlike in criminal proceedings, where the public prosecutor is responsible for prosecuting perpetrators of domestic violence, the police play a dominant role in domestic violence prevention proceedings. They are responsible for risk assessment and risk management as well as for taking immediate action against the perpetrator. Based on these legal provisions, it is clear that the police and the public prosecutor within the Serbian legal system must effectively cooperate and coordinate in the fight against domestic violence. Although the main goal of repressive measures in criminal law is to punish the perpetrator, we believe that both preventive and repressive measures in the field of domestic violence should have the same main goal: to prevent violence by eliminating the conditions and causes that lead to it. The competent authorities should take appropriate legal action against a potential perpetrator in order to prevent them from committing domestic violence for the first time or reoffending if they have done so in the past. Imposing immediate measures, such as the perpetrator moving out of the home if they share it with the victim, and prohibiting contact with or approaching the victim is intended to remove the conditions that could lead to future violence. The public prosecutor can only propose to the court an extension of the immediate measures against the perpetrator if these measures were originally imposed by the police. In addition, the public prosecutor plays another important role: presiding over the Group for Coordination and Cooperation, which is established within the jurisdiction of each public prosecutor. One of the tasks of the Group is to develop an individual protection and support plan for the victim. The aim of this paper is to present the results of research related to certain effects of the implementation of the Law on Prevention of Domestic Violence, adopted as a result of the ratification of the Istanbul Convention and the application of the pre-crime concept in the field of domestic violence in Serbia, in the period from 2018 to 2024. The subject of the conducted research is the analysis of the practical actions of the competent authorities in preventing domestic violence and protecting victims of domestic violence. The research focused on determining the extent of domestic violence in Serbia and assessing the efficiency and effectiveness of the competent authorities, in particular the impact of the measures taken to ensure the safety of the victim. The research was based on the application of normative and statistical methods, content analysis and comparative and formal-logical analysis. The results obtained from the study were processed statistically using an appropriate selection of statistical methods. Through the application of content analysis, the paper examines legal regulations and relevant academic texts related to the topic of combating domestic violence. Using statistical methods, the data of the Ministry of the Interior of the Republic of Serbia and the General Public Prosecution on the topic of domestic violence for the period 2018–2024 were analyzed. The results show that the number of registered incidents of domestic violence in Serbia has remained at a similar annual level, as has the number of emergency measures imposed. The number of criminal offenses related to domestic violence is decreasing, as is the number of family members killed in acts of domestic violence. This indicates the positive effects of the application of the concept of combating criminal records in the field of domestic violence in Serbia. However, the high number of women killed by men with whom they had some form of intimate relationship remains a major cause for concern. In several cases, the murders occurred even though the victims had previously reported domestic violence to the police. It is therefore necessary to raise the efficiency of the competent authorities in preventing the most serious forms of domestic violence to a higher level.

**Keywords:** *domestic violence, prevention, repression, perpetrators of violence, victim protection.*

**Field:** Social sciences

## 1. INTRODUCTION

Domestic violence has been recognized as a major social problem worldwide. It has existed since the beginnings of human society and has accompanied its development. Men, as the physically stronger gender, have often used violence to dominate women and other family members. Such behavior was condoned by the community and was not considered punishable. For years, the male role was characterized by the idea that no one could challenge male authority without risking consequences (Westerhof, 2020, p. 47). As society has developed, attitudes towards domestic violence have also

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changed. In the United States, courts in the 1870s ceased to recognize the common law principle that granted husbands the right to physically punish disobedient wives. In the United Kingdom, the traditional right of a husband to administer moderate physical punishment to his wife in order to keep her within the bounds of her duties was abolished in 1981 (Alokan, 2013, p. 101). Today, domestic violence is prohibited, and in many countries, certain forms of violence against a family member are classified as distinct criminal offenses (e.g., Serbia, Croatia, Montenegro, Slovenia, Norway, Sweden). In other countries, domestic violence is treated as an aggravated form of specific criminal offenses that typically involve elements of violence (e.g., North Macedonia, Spain, Switzerland) (Marković, 2018, pp. 117–120). Women are most often the victims of domestic violence, while men are most often the perpetrators. The majority of cases of violence against women are not reported to the police (Sapirova & Abenova, 2024, p. 39; Kadam & Chaudhari, 2011, p. 262). The most severe form of domestic violence is the murder of a family member, with men most often being the perpetrators and women the victims (Kolarić & Marković, 2024, pp. 570–571; Marković & Kolaric, 2024, pp. 231–233). Intimate femicide is the most common form of femicide within the family (Aljinović, 2024, p. 84; Joković, 2020, p. 178). Although many studies confirm this pattern in most countries (Australia, England and Wales, Scotland, Canada, India, Denmark), research conducted in the United States shows that men are just as likely to be victims of intimate femicide as women — some studies even suggest that men are up to twice as likely to be victims of intimate femicide compared to women (Muller, 2005, pp. 55–57). In Serbia, women are the most frequent victims of intimate femicide, with almost 50% of perpetrators subsequently committing or attempting suicide (Marković, 2024, p. 383). In 2015, the United Nations set the goal of eliminating all forms of violence against all women and girls in both public and private spheres (UN, 2015, Annex 5, Goal 5, Target 5.2). The success of criminal policy depends on how precisely and realistically the goals in the area of combating a particular type of crime are set and whether the measures, means and methods that the competent authorities will use to achieve the planned objectives are well thought out and concretized. In the area of combating crimes against marriage and family, a realistic goal would be to reduce the number of victims of the most severe forms of domestic violence that result in the loss of a family member's life at the hands of another family member.

Criminal policy shapes and conveys the political will of the authorities through a criminal strategy that is intended to operationalize the criminal policy concept of crime control (Marković & Kolaric, 2023, p. 41). The main strategic directions in the fight against crime are prevention and repression, with modern police crime-fighting strategy models based on proactivity (Marković, 2019a, p. 162). In 2002, Serbia criminalized domestic violence in its criminal justice system, as repressive measures were seen as the preferred model for combating crime in this area (Kolarić & Marković, 2021, p. 264). In 2005, the Family Law (FL) was passed, which introduced court-ordered protective measures against domestic violence (Kolarić & Marković, 2021, p. 265). Prevention of domestic violence was carried out in the manner prescribed by this law. A public prosecutor (PP), a guardianship authority, a family member affected by violence or their legal representative could file a complaint and apply for one or more protective measures. The FL did not assign a role to the police in the prevention of domestic violence.

By ratifying the Istanbul Convention, Serbia undertook, among other things, to include provisions in its legal system assigning the police a leading role in the prevention of domestic violence. The Law on Prevention of Domestic Violence (LPDV) stipulates that there must be an immediate response to signs of domestic violence and that the victim must be protected immediately. The procedure conducted under the LPDV is a special, specific integrated police and judicial process consisting of two interconnected parts in which the PP is involved (Kolarić & Marković, 2022, p. 199). The police are obliged to carry out a risk assessment and, if a risk is identified, to impose emergency protective measures against domestic violence (Kolarić & Marković, 2021, pp. 265–266). The LPDV was adopted in 2016 and has been in force since June 1, 2017. In contrast to protective measures under family law, which are imposed by the court in civil proceedings for a period of up to one year and require the court to prove that domestic violence has occurred in the past, emergency measures are imposed by the police immediately after the risk assessment.

For a police officer to be authorized to prevent domestic violence, two requirements must be met: The officer must complete 33 hours of specialized training in this area, which is conducted at the University of Criminal Investigation and Police Studies, and they must be designated by the head of the police department for domestic violence prevention. Emergency measures may only be imposed on a potential perpetrator who has been brought to the police after they have had the opportunity to comment on the circumstances of the case and where an imminent risk of domestic violence has been identified through a risk assessment. The commission of violence in the past is not a necessary condition for the imposition of emergency measures. The purpose of emergency measures is to prevent future violence by eliminating the causes and conditions that lead to violence. The competent authorities have adopted a

proactive approach in this area. The aim is to address the underlying problem that may lead to an incident or form of violence. The duration of the emergency measures is 48 hours, and the court can extend them for another 30 days at the request of the PP.

The Serbian Constitution stipulates that the PP prosecutes criminals and other criminal offences and performs other tasks to protect the public interest in accordance with the law. Since the PP is named as a party to proceedings for the prevention of domestic violence in both the FL and the LPDV, it can be concluded that the state has assigned this role to the PP because it considers the protection of victims of domestic violence and its prevention to be a matter of high public interest.

The deadlines for action are extremely short: the prosecutor has 24 hours to conduct a risk assessment and submit a proposal to the court for the extension of the emergency measures, and the court has the same amount of time to make a decision based on the file and its independent risk assessment. There is no hearing, which is why this procedure is often referred to in academic literature as a "quasi-judicial" procedure. The court decides during the period of the emergency measures imposed by the police (48 hours). In 2018, the first full year of implementation of the LPDV, the court extended 90% of the emergency measures imposed by the police, with 85% of perpetrators being male and 72% of victims being female (Marković, 2019, pp. 60–61). An administrative offense punishable by up to 60 days in prison was introduced for violations of the emergency measures, as well as a protective measure with similar content to the two emergency measures, which can last up to one year. However, this protective measure can only be imposed if the applicant for the initiation of the misdemeanor proceedings requests the imposition of this measure against the accused or if the injured party proposes it in an oral hearing, which is very rare (Marković, 2024a, p. 221).

## 2. MATERIALS AND METHODS

The paper analyzes the legal provisions related to domestic violence using the content analysis method, while statistical methods were applied to process data from the Ministry of the Interior of the Republic of Serbia (MI) and the General Public Prosecution (GPP) related to domestic violence for the period from 2018 to 2024. The sample includes all reported incidents with elements of domestic violence recorded by the MI during the specified period, as well as data on potential perpetrators, emergency measures, victims of domestic violence and perpetrators who violated emergency measures, as contained in the electronic records of the MI. It also includes data from the GPP on the activities of the Group for Coordination and Cooperation (Group) in the same period (number of meetings held, participation of victims in the meetings and number of individual victim protection plans developed).

## 3. RESULTS AND DISCUSSION

The implementation of the LPDV has led to a shift in the criminal-strategic approach to combating domestic violence in Serbia. The pre-crime concept has become the fundamental mode of operation for the police and the PP. All information about perpetrators of domestic violence is forwarded to the police, who are obliged to assess all risk factors and carry out a risk assessment in relation to domestic violence. The PP is also subject to this obligation.

One of the options available to the police to prevent the possibility of contact between the potential perpetrator and the victim is to order a temporary restraining order. Another option is to temporarily remove the perpetrator from the home if they live with the victim. The procedure is urgent and the police cannot decide at their own discretion whether to carry out a risk assessment. They are obliged to do so. The police are also obliged to provide the victim with immediate protection if the perpetrator cannot be reached and there is a certain risk of violence. This means that a risk assessment is carried out even if the possible perpetrator cannot be reached, although immediate measures can only be imposed on a person who has been brought to the police station and only if they have had the opportunity to respond to the allegations.

Emergency police measures are valid for 48 hours and cannot be revoked, even if the police officer who imposed them intends to do so. The order, which contains the risk assessment and the immediate measures, is immediately forwarded to the PP, which must then carry out its own risk assessment. If it finds that there is a risk, it applies to the court to extend the emergency measures by 30 days. The court is also obliged to carry out its own risk assessment. It is clear that the actions of all relevant authorities are based on a domestic violence risk assessment. The police forward the order with the risk assessment and the emergency measures to the social services department and the Group, which are then obliged to carry out a risk assessment and draw up an individual victim protection plan if they determine that there is a risk of domestic violence.

Table 1: Reported perpetrators of domestic violence and emergency measures in the period 2018–2024 (MI, 2025)

Individuals reported for the domestic violence	208807
Risky individuals	149818
Individuals under police emergency measures	147179
Individuals proposed by the PP for the extension of emergency measures	138491
Individuals whose emergency measures have been extended by the court	133611

Source: Author's research

In Serbia, between 29,000 and 31,000 potential perpetrators of domestic violence are recorded each year. In around 71% of these cases, the police determine that there is a risk of domestic violence and impose emergency measures (MI, 2025). The trend in the annual number of people reported and the percentage of emergency measures imposed and extended has remained stable and consistent over the seven years that the LPDV has been implemented. The court extends emergency measures in 91% of cases which were originally imposed by the police. Out of all persons reported for domestic violence, 81% were male and in most cases they lived in a marital or cohabiting relationship with the victim (38%). A large proportion of those reported (40%) were reported two or more times and 50% were between 31 and 50 years old.

The Groups held 19,522 meetings, between 2,600 and 3,000 per year, during which they adopted 132,914 individual victim protection plans. The fewest plans were drawn up in 2018, 13,109 and the most in 2023, 25,396. In 2024, a total of 19,726 plans were drawn up (GPP, 2025). A total of 6,283 victims took part in the meetings of the Groups, in which the necessity, nature and extent of their protection was decided. It is noteworthy that in 2023 and 2024 alone, 4,855 victims (77%) of the total number of victims who attended the meetings during the seven-year period were present at these meetings. The LPDV requires the Groups to invite victims to the meetings and allow them to attend if they wish, as the meetings concern their safety. It is important for the Groups to find out from the victims how they themselves assess the risk of repeated violence in the future. The PP filed 2,394 complaints for the imposition of family law protection measures against domestic violence, of which 1,205 were upheld by the courts. The highest number of complaints was filed in 2024 (728), of which 544 were upheld (GPP, 2024). We conclude that the PP has changed its approach in the last two years of the analyzed period, as the participation of victims in the meetings of the Group and the filing of complaints for protective measures under the FL have increased significantly.

Table 2: Administrative offenses – Violation of the emergency measures under Article 36 of the Act on the LPDV (MI, 2025)

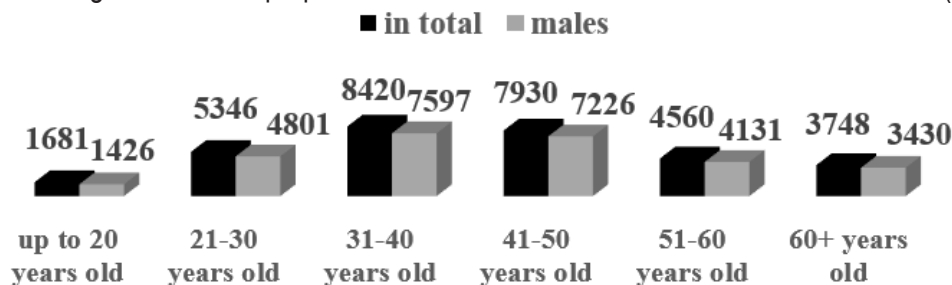
Individuals suspected of an offense	14197
Male individuals suspected of an offense	12586
Punished individuals	11944
Individuals sentenced to imprisonment	9981

Source: Author's research

The table shows that just under 10% of the perpetrators against whom emergency measures were imposed violated them (9.6%), 89% of whom were male. According to the MI, emergency measures were imposed on 123,619 men, which means that over 10% of male perpetrators violated the measures (10.2%). Out of 23,586 women against whom emergency measures were imposed, 1,611 (6.8%) breached them. Of the total number of persons suspected of this offense, 84% were sanctioned, with 84% of those receiving a prison sentence. The majority of prison sentences were up to 10 days (3,359), followed by 11 to 20 days (2,694), 21 to 30 days (2,326) and the fewest of 31 to 60 days (1,602). Considering that the only prescribed penalty for this offense is a prison sentence of up to 60 days, it can be concluded that the sentencing policy is lenient. A total of 87% of those sanctioned were sentenced to either a fine or a prison sentence of up to 30 days. In 2018, 93% of those convicted were sentenced to imprisonment, compared to 78% in 2022 (Marković, 2023, p. 12). This trend towards lower sentences continued in 2024, with the proportion of custodial sentences at just under 77%. Of the total of 1,716 sentences imposed, 399 (23.3%) were fines (MI, 2025). The Misdemeanor Court imposed 467 protective measures prohibiting contact with the victim, which may also include a ban on approaching the shared residence if the perpetrator and the victim live together. The Ministry of Interior's Standard Operating Procedures for the Prevention and Suppression of Domestic Violence, which have been in effect since December 12, 2022, require the party

filing the request for misdemeanor proceedings to propose this protective measure. The court cannot impose it without a proposal from the applicant or the victim. Although the use of this protective measure increased in 2023 and 2024 (117 and 154 orders respectively), it is still rarely imposed, despite the fact that it can last up to a year. The penalty for violating this protective measure is the same as for the original misdemeanor — up to 60 days imprisonment. It is considered that this legislation should be applied more frequently, as it can be a suitable tool for preventing domestic violence in many cases.

Chart 1: Age structure of perpetrators of the Criminal Offense of Domestic Violence (MI, 2025)



Source: Author's research

Serbian criminal legislation, domestic violence is prescribed as a separate criminal offense. Between 2018 and 2024, a total of 34,112 criminal offenses of domestic violence were registered. The highest number was registered in 2018 (5,977) and the lowest in 2024 (4,097). The number of offenses decreased until 2023, when there was a slight increase, but fell again in 2024, with a third fewer offenses compared to the beginning of the observation period. In the same period, a total of 31,709 perpetrators of domestic violence were recorded, of whom 28,634 (90 %) were male. This means that 21% of those assessed by the police as being at risk of domestic violence were suspected of having committed the crime of domestic violence. It can be seen that the number of perpetrators increases with age, with the highest proportion of 31 to 40 year olds and 41 to 50 year olds, while the number decreases thereafter. According to MI records, 24 perpetrators — 23 men and one woman - were not given an age. A total of 33,818 victims were registered, 75% of whom were female.

The offense of domestic violence includes a basic form, three aggravated forms and one special form. The basic form consists of three acts: Use of force, serious threat and outrageous or inconsiderate behavior. The consequences are a threat to the peace, physical integrity or mental state of a family member. This form is the most common.

During the reporting period, 28,485 such offenses were recorded — 84% of the total — committed by 24,247 perpetrators, representing 82% of the total number of offenders, 91% of whom were male. The difference in the number of offenses and perpetrators is due to the fact that some individuals are repeat offenders. A total of 27,553 victims were registered for this form of the offense, of whom 77% were women. Female victims were most often between 31 and 40 years old (5,100 or 24%), while the male victims were most often over 60 years old (1,985 or 32%). The first aggravated form of this offense occurs when the perpetrator uses a weapon, dangerous tool, or other object that can cause serious bodily injury or damage to health. A total of 2,190 such offenses were registered, which is 6% of all offenses. Charges were filed against 2,128 people, 81% of whom were men. There were 2,425 victims, 57% of whom were women. The male perpetrators were relatively evenly represented in all age groups over 21, while the victims were mostly older men and women (over 60).

The second aggravated form includes cases in which the victim suffers serious bodily injury or serious impairment of health as a result of the basic form or the first aggravated form, or if the victim is a minor. The third aggravated form occurs when the victim — a family member — dies as a result of the crime. A total of 2,287 such offenses were registered (8% of all cases). Charges were filed against 2,228 people, 84% of whom were male. A total of 2,780 victims were registered, 63% of whom were women. The male perpetrators were most frequently between 41 and 50 years old.

The lowest number of recorded offenses relates to the third, aggravated form. A total of 11 offenses were committed in which 12 perpetrators took the lives of 11 family members, one of whom was a minor. A particularly severe penalty is provided if the victim is a minor family member — at least 10 years imprisonment.

The consequences in the form of grievous bodily harm or death in the case of the second and third aggravated forms must be due to negligence on the part of the perpetrator; if caused intentionally, the perpetrator is held liable for grievous bodily harm or murder. A special criminal offense is provided for a

perpetrator who violates protective measures against domestic violence imposed by the court under the Family Law. What is interesting about the Serbian legal system is that protective family law measures are established in civil proceedings but are protected under criminal legislation. During the period studied, 1140 such offenses were registered, which corresponds to 3% of all offenses, 869 men and 50 women were suspected of having committed this type of crime, while 836 women and 180 men were identified as victims.

We conclude that the perpetrators of domestic violence are mostly men in full physical strength, while the victims are mostly younger women aged 31 to 40 and older men who are physically weaker due to their age. An analysis of the perpetrators of prescribed forms of criminal offenses revealed that women are more likely to commit the first aggravated form than the basic form, suggesting that they are more likely to use a dangerous weapon or other means capable of causing serious bodily harm in domestic violence than to rely on physical strength. Men predominate as victims in the qualified form of the offense, accounting for 43% of cases, compared to only 23% in the basic form. When assessing the risk of the most severe consequences of domestic violence, the competent authorities should take particular account of the following risk factors: the breakup of an intimate partnership, death threats against the victim, jealousy and stalking of a partner who has left the relationship, possession of or access to firearms and threat of suicide (Mršević, 2014, p. 91; Pavlov, Lacmanović, 2023, p. 12).. Between 2018 and 2024, a total of 143 people were killed in cases of intimate partner violence, 119 men killed their female partners, 3 killed their male partners and 21 women killed their male partners. We are deeply concerned about the high number of women killed in cases of intimate partner violence. Throughout the years 2015 to 2017, a total of 66 women were killed by their partners (19 in 2015, 23 in 2016 and 24 in 2017); between 2018 and 2020, the number was 59 and between 2021 to 2023 it was 46 (Marković, 2024, p. 393). It should be noted that the implementation of the Law on Prevention of Domestic Violence has shown positive impact in recent years. However, in 2023 and 2024 there was a negative trend compared to 2021 and 2022, as 4 more women were killed. In 2023, 18 women were killed and in 2024, 14 women were killed (MI, 2025), which leads us to conclude that the year 2023 is an exception to the downward trend in the number of women killed by partner violence.

The number of women killed in cases of partner violence previously reported to the police is also worrying — a total of 27 cases (MI, 2025). This data shows that the measures taken by the competent authorities to protect victims were ineffective and inadequate. The high number of suicides among perpetrators is also worrying. From 2018 to 2024, 59 of 119 male perpetrators — i.e. 50% — attempted or committed suicide. This data shows how difficult it is for the authorities to take preventive measures against the most serious forms of domestic violence, as in half of the cases the male perpetrators simultaneously decide to commit suicide after the murder, making general prevention measures ineffective. The fear of punishment cannot prevent perpetrators from committing the crime, which is why it is important to eliminate the conditions that may lead to the commission of the crime.

#### 4. CONCLUSIONS

Based on the research conducted, we conclude that the pre-crime concept has had a positive impact in the field of combating domestic violence in Serbia. The number of reported incidents of domestic violence remains at a similar level every year, but the number of cases in which the police have to file criminal charges is steadily decreasing. Women continue to be the most frequent victims of domestic violence; however, the number of women killed by their partners has decreased significantly in recent years, especially compared to the period before the introduction of the LPDV.

The positive effects observed in 2023 and 2024 are reflected in the changed approach of the PP in these cases. Prosecutors are increasingly inviting victims of domestic violence to the meetings of the Group to involve them in drawing up their own protection plans. This change was probably influenced by the previous relatively high number of women who were killed after reporting intimate partner violence. The number of complaints filed by PP under the FL, seeking the imposition of long-term protective measures against domestic violence has also increased significantly.

An opinion survey commissioned by the OSCE Mission to Serbia and conducted at national level from November 14 to December 12 shows that 15% of citizens consider domestic violence to be the most important security problem in the country. Overall, 61% of citizens said they would report domestic violence if they became aware of it, which is a significantly higher percentage than those who would report other types of crimes in similar circumstances — 42% (Kantar TMG Insights, 2025).

This research shows that citizens in Serbia have recognized the importance of preventing domestic violence and that they trust the competent authorities and the police to take timely and effective action to

combat this harmful social phenomenon.

However, in the first year of implementation of the law (the law has been in force since June 1, 2017), 63% of citizens stated that they would report domestic violence (Kantar TMG Insights, 2025). This was followed by a downward trend, which reversed in the seventh year of the law's implementation. Nevertheless, trust in the police has not yet returned to the level before the introduction of the law, whose main aim was to prevent domestic violence.

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# BIBLIOTHERAPY AS A PSYCHO-PEDAGOGICAL TOOL FOR FOSTERING ECOLOGICAL BEHAVIOUR AND EMOTIONAL CONNECTION WITH NATURE: A CONCEPTUAL MODEL FOR REDUCING ECO-ANXIETY IN PRIMARY SCHOOL STUDENTS AND CONTRIBUTING TO THE THEORY OF UPBRINGING

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**Abstract:** The development of ecological behaviour and the management of the emotional consequences of the climate crisis among primary school pupils require an interdisciplinary approach that integrates educational, psychotherapeutic, and developmental strategies. In response to the growing manifestations of eco-anxiety in children, a psycho-pedagogical model based on bibliotherapy has been developed by Dr. Abner. The author's model, entitled "The Language of the Forest", consists of four sequential stages: recognising anxiety, establishing a connection with nature, transforming fear into engagement, and fostering reflective thinking. Each stage utilises a set of carefully selected activities designed to address specific emotional and cognitive needs. Recognising anxiety involves creating a safe space where children can articulate their fears through storytelling and metaphor. Establishing a connection with nature uses immersive literary experiences and symbolic play to build empathy towards the environment. Transforming fear into engagement employs narrative-based role-play and creative projects that empower children to envision themselves as protectors of nature. Fostering reflective thinking integrates dialogue and expressive arts to encourage internalisation of ecological values. Central to this process is the use of ecologically themed literature, which enables emotional identification, self-regulation, and the development of a sense of belonging to the natural world. A number of recent studies confirm the effectiveness of bibliotherapy in supporting children experiencing anxiety, adjustment difficulties, and eco-anxiety. The model combines reading, role-play, creative expression, and hands-on environmental care, creating a multimodal learning environment that nurtures both emotional well-being and cognitive understanding. Practical examples include the use of children's books depicting endangered ecosystems, guided imaginary journeys into forests, and collaborative projects for environmental stewardship. The model provides a safe space for sharing, processing, and transforming negative emotions while encouraging active participation and personal responsibility. The proposed framework is applicable in both formal and non-formal educational settings, including schools, libraries, and community centres, and contributes to the integration of environmental education with mental health support within contemporary pedagogy. By addressing the emotional dimension of ecological awareness, the model lays the groundwork for the formation of long-term attitudes towards sustainability, strengthens the child's capacity for resilience in the face of global environmental challenges, and fosters a sense of empowerment and agency in young learners.

**Keywords:** *Bibliotherapy, eco-anxiety, environmental education, emotional regulation, psycho-pedagogical model, nature-based learning, climate-related distress, resilience, interdisciplinary approach.*

**Field:** Pedagogy

## 1. INTRODUCTION

Eco-anxiety in children can be understood as a consequence of a disrupted connection with the natural world. Children are particularly vulnerable to this type of anxiety due to their limited capacity to comprehend and process the complex information associated with climate change. According to Pihkala, restoring this connection is essential for psychological wellbeing and mental resilience (Pihkala, 2020). In her book *Eco-Anxiety*, American environmentalist Heather White introduces a new genre of literature aimed not only at fostering sustainable thinking, but also at promoting inner restoration through self-awareness and daily acts of care for both oneself and the environment (White, 2024). Hickman and colleagues observe that young people across the globe express significant ecological concern regarding environmental degradation, which adversely impacts their mental health (Hickman, C., Marks, E., Pihkala, P., et al, 2021). Building an emotional bond with nature and developing ecological behaviour are considered key strategies for mitigating these negative emotions. Harriet Dyer highlights that reading can serve not only as an informative process but also as an experience of reassurance, connection,

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and renewal—core elements of bibliotherapeutic practice (Dyer, 2023). Bibliotherapy may thus function as a therapeutic method that uses literature to offer emotional and cognitive support in coping with eco-anxiety. Through identification with characters and narrative situations, children are enabled to process their own feelings and fears. Research by Shechtman demonstrates the effectiveness of bibliotherapy in reducing anxiety and aggression by enhancing emotional regulation in children (Shechtman, 2008). Further studies by Betzalel, Shechtman, and Rapee provide strong evidence supporting the efficacy of affective bibliotherapy for children with adjustment difficulties and anxiety disorders. Notably, such interventions have been associated with a marked reduction in emotional and behavioural symptoms (Betzalel, N & Shechtman, Z, 2010).

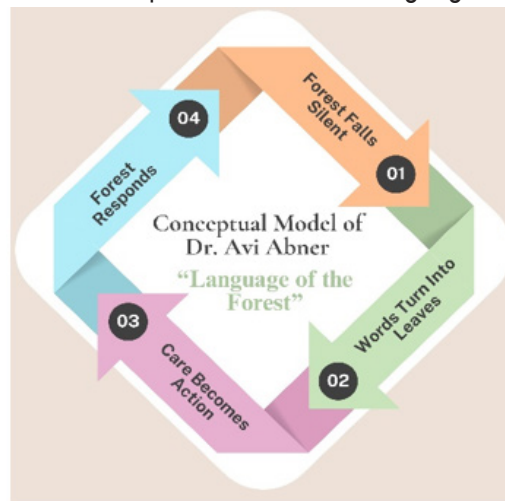
## 2. METHODS

Bibliotherapy is an established tool that has found broad application in both educational and therapeutic practice as a means of fostering emotional regulation and cognitive development. In the context of contemporary challenges related to the ecological crisis and its psychological impact on pupils, bibliotherapy acquires renewed significance as a potential response to the growing phenomenon of eco-anxiety. This study proposes an original psycho-pedagogical model, grounded in bibliotherapeutic principles, aimed at fostering ecological behaviour and developing an emotional connection with nature among primary school children. The model builds upon recent empirical research and integrates bibliotherapy with practical and creative activities designed to reduce eco-anxiety and nurture active environmental awareness. It positions literature not only as a source of knowledge, but also as a medium for emotional engagement and identity formation in relation to the natural world. Studies conducted by Caroline Hickman and her colleagues indicate that anxiety linked to environmental concerns affects a significant proportion of young people and exerts a negative influence on their daily lives (Hickman, C., Marks, E., Pihkala, P., et al, 2021). Eco-anxiety among school-aged pupils often manifests through feelings of helplessness, existential fear, and guilt associated with one's individual ecological footprint. In pedagogical practice, there is a growing demand for methods that not only inform children about environmental issues, but also engage them emotionally and provide effective strategies for coping with fear and anxiety. Bibliotherapy, as a method for addressing anxiety, has been the subject of numerous studies that confirm its effectiveness. Betzalel and Shechtman found that bibliotherapy significantly reduces anxiety in children with adjustment difficulties by enabling identification with literary characters and the experience of emotions in a safe and symbolic context. (Betzalel, N & Shechtman, Z, 2010). Further support for the need for such a psycho-pedagogical model is provided by research conducted by Léger-Goodes and her colleagues, who examined manifestations of eco-anxiety in children and their parents. The results convincingly demonstrate that even at an early age, children are aware of the implications of climate change and respond with intense emotions such as fear, sadness, guilt, and at times, anger (Léger-Goodes, T., Malboeuf-Hurtubise, K., et al , 2023). These findings reveal that ecological issues are not abstract to children; rather, they are experienced in deeply personal ways, filtered through a sense of identity and anticipation of the future. The researchers underscore the importance of targeted pedagogical approaches that provide both information and a safe environment in which children can express, understand, and process their anxious experiences.

In his book *Eco-Anxiety: Coping with Environmental Concerns in a Changing World*, Blackwood highlights that “Eco-anxiety reflects the emotional burden of witnessing the degradation of nature while feeling powerless to make a meaningful difference” (Blackwood, 2025). This perspective directly links mental health with themes of environmental justice and social responsibility. It is precisely in this context that bibliotherapy finds its relevance as a pathway through which pupils can recognise and process their emotions via engagement with literary texts, ultimately fostering inner resilience. Bibliotherapy, as developed within the original model by Dr Avi Abner “The Language of the Forest”- plays a central role in this process. This innovative psycho-pedagogical approach employs carefully selected ecologically themed literary works that enable emotional identification with characters and activate internal resources for coping with anxiety. The involvement of children in complementary creative and discussion-based activities, inspired by the literary content, facilitates the transformation of fear into engagement and the establishment of a lasting emotional bond with nature. Dr Abner's model thus contributes both to the mitigation of eco-anxiety and the formation of deeply rooted ecological awareness. In addition to emotional support, Léger-Goodes' research emphasises the need for empowerment strategies- pathways through which children come to perceive themselves as having a voice, value, and the capacity to act. (Léger-Goodes, T., Malboeuf-Hurtubise, K., et al , 2023). This aligns fully with the aims of *The Language of the Forest*, which not only fosters emotional connection to nature but also cultivates a lasting sense of

responsibility and commitment. The transition from fear to active engagement takes place within the safe framework of the bibliotherapeutic process, which unites psychological care with a profound educational effect.

Figure 1. Conceptual Model: "The Language of the Forest"



Source: Conceptual model developed by Dr. Avi Abner. All rights reserved.

**STAGE ONE: Recognising Eco-Anxiety** - This initial stage lays the foundation for identifying children's fears and concerns related to the natural environment. The educator introduces the topic through reflective questions aimed at drawing attention to the subjective emotional responses pupils experience in relation to nature. To support this process, excerpts from "Do You Hear How the Trees Speak" by Peter Wohlleben are read and discussed, with a focus on the theme of mutual support among trees (Wohlleben P. , 2023). This narrative element serves as an accessible entry point into the understanding of ecological interconnectedness. Pupils are then invited to visualise their emotions by drawing a "sad forest," offering a symbolic and non-verbal channel through which eco-anxiety can be expressed safely, without requiring direct verbalisation.

**STAGE TWO: Introduction to "The Language of the Forest"** - This phase focuses on building a positive emotional connection with nature. Literary works are employed as tools to foster a sense of attachment to the natural world. The book of Peter Wohlleben introduces children to the enchanting "language" of nature, helping them discover the interrelations between words, emotions, and their surrounding environment. To strengthen the effect of identification, pupils are invited to adopt a role- for example, a tree, an animal, or a natural phenomenon and to re-enact a scene in which these elements interact, reflecting the ecological mechanisms described in the book. This process enables children to perceive nature not merely as a backdrop to human activity, but as an active participant in their world.

**STAGE THREE: From Experience to Transformation** - In this stage, pupils transition from passive experience to active transformation- realising the profound educational potential of bibliotherapy and psychodrama as a unified psycho-pedagogical framework. Alongside reading, children engage in role-play activities, adopting the personas of "forest healers"- characters who devise and carry out the restoration of a threatened ecosystem. Within this dramatisation, the feeling of helplessness is transformed: the fear of loss gives way to a sense of agency and potential for change. A symbolic yet tangible act is introduced- each child plants an avocado seed, conveying a message of patient growth, resilience, and care. The choice of the avocado is deliberate: it is a plant that demands time, consistency, and attention to germinate. Through this process, children come to understand that meaningful change whether in nature or in human relationships requires responsibility, time, and love. The act of planting becomes a personal vow: the child recognises that even the smallest gesture can have lasting impact. Thus, the third stage fulfils its core educational aim to transform anxiety into action, fear into commitment, and detachment into empathy. Nature is once again perceived not as a threat, but as an ally; and the child, no longer a passive observer, becomes an active participant in its renewal.

**STAGE FOUR: Reflection** - In the final stage, pupils reflect on what they have learned and consolidate their emotional connection with nature. This process involves a group discussion centred on their experiences throughout the activities, as well as a form of creative expression such as producing a collage or composing a letter that the forest might send to humanity. The inclusion of Peter Wohlleben's

second book, „The Hidden Life of Trees“, offers an additional reflective layer, guiding children to perceive the human–nature relationship as one of mutual dependence and balance (Wohlleben P. , 2017). Through reading and discussion, they are encouraged to move beyond abstract understanding and toward a deeper emotional awareness of the interconnectedness between all living systems. By this stage, eco-anxiety is not only reduced, but transformed into insight, emotional clarity, and lasting ecological empathy.

The implementation of the “Language of the Forest” model in both formal and non-formal educational settings demonstrates notable psychological and pedagogical benefits. According to Maria Ojala, participation in structured environmental activities significantly reduces anxiety in children, while simultaneously enhancing their resilience and critical thinking skills in relation to ecological challenges (Ojala, 2011). The anticipated outcomes of applying this method include a decrease in eco-anxiety, increased emotional stability, and the development of ecological awareness. The integration of bibliotherapy with play-based and practical activities fosters long-term attitudes towards environmental stewardship and cultivates a sense of belonging to the natural world. This model offers an innovative and evidence-based approach for addressing rising levels of anxiety among children, while also promoting the formation of sustainable environmental values. Its incorporation into educational practice has the potential to contribute meaningfully to the development of a more responsible and environmentally engaged generation.

Figure 2. Operational Process



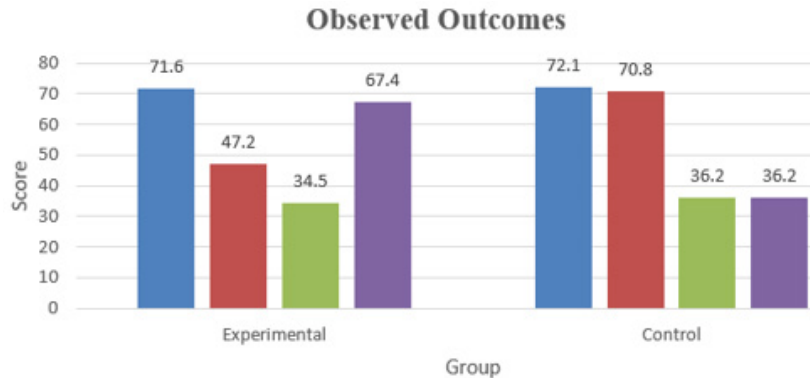
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### 3. RESULTS

To assess the impact of the bibliotherapeutic model The Language of the Forest, a controlled pedagogical study was conducted with 80 pupils aged 8–10 from four primary school classes. Participants were divided into an experimental group (3B and 4B) and a control group (3A and 4A), each comprising 20 pupils. The intervention included six bibliotherapy sessions integrating eco-themed literature, symbolic action, and creative engagement. Baseline measures indicated high eco-anxiety levels in both groups (Experimental:  $M = 71.6$ ,  $SD = 4.8$ ; Control:  $M = 72.1$ ,  $SD = 5.0$ ) and low perceived efficacy (Experimental:  $M = 34.5$ ,  $SD = 3.9$ ; Control:  $M = 36.2$ ,  $SD = 4.0$ ). Post-intervention, the experimental group exhibited a significant decrease in eco-anxiety ( $M = 47.2$ ,  $SD = 4.1$ ) and a marked increase in efficacy ( $M = 67.4$ ,  $SD = 4.2$ ). The control group showed minimal change. Statistical analysis confirmed the significance of these results ( $t(39) = 8.94$ ,  $p < 0.001$  for eco-anxiety;  $t(39) = 9.88$ ,  $p < 0.001$  for efficacy). Qualitative observations revealed a shift from passive concern to proactive environmental empathy among the experimental group, supporting the effectiveness of bibliotherapy in early education contexts.

The collected data provide clear evidence of differences between the experimental and control groups. Quantitative results showed significant reductions in eco-anxiety and notable increases in perceived efficacy among pupils participating in the bibliotherapeutic sessions. These outcomes were corroborated by qualitative observations, which indicated a transition from passive environmental concern to more active and empathetic attitudes within the experimental group.

Figure 3. Outcomes Following the Implementation of the “Language of the Forest” Model



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#### 4. DISCUSSIONS

The results of the study show that the bibliotherapeutic model The Language of the Forest is an effective method for reducing eco-anxiety and increasing the sense of personal ability among primary school pupils. The study adds important knowledge to the field of pedagogy by demonstrating that addressing emotional reactions to the climate crisis in a structured educational way is essential. Traditional environmental education often focuses only on facts and problems, without offering children tools to manage the strong emotions that these issues create. The Language of the Forest fills this gap by helping pupils first recognise and name their eco-anxiety, and then transform it into positive feelings of care, responsibility, and connection with nature. The observed shift from passive fear to active engagement suggests that when children are given emotional support and creative opportunities, they can develop a stronger and healthier relationship with environmental issues. Rather than feeling overwhelmed and helpless, the pupils learned to see themselves as part of the solution, which is critical for their psychological resilience and their future environmental attitudes. The study also shows that bibliotherapy, a method traditionally used in therapeutic settings, can be successfully adapted for use in everyday educational practice. Using stories, creative activities, and discussion helped pupils not only understand their emotions but also express them safely and find positive ways to act. Overall, the results demonstrate that The Language of the Forest is a valuable pedagogical tool. It supports emotional growth, reduces fear, and encourages positive action in the face of the climate crisis. This approach can be an important part of modern educational strategies aimed at preparing children not only intellectually but also emotionally for the challenges of the future.

#### 5. CONCLUSION

The study confirms the effectiveness of the bibliotherapeutic model The Language of the Forest in supporting the emotional development of primary school pupils within the framework of environmental education. By guiding pupils through structured literary experiences, symbolic activities, and creative expression, the model successfully reduced feelings of eco-anxiety and strengthened their sense of personal responsibility, efficacy, and emotional resilience. The notable changes observed among the participants underline the critical need to address the emotional dimensions of environmental issues early in the educational process, when children’s attitudes and coping mechanisms are still forming. These findings emphasise that education aimed at sustainability must move beyond the mere transmission of information and actively nurture the emotional capacities that enable young learners to engage meaningfully and constructively with the pressing challenges of the contemporary world. Knowledge alone, without emotional grounding, risks leaving pupils overwhelmed or paralysed in the face of global environmental crises. By contrast, the approach developed in this study demonstrates that carefully designed pedagogical methods can cultivate both cognitive understanding and emotional maturity, equipping children to act with confidence, care, and hope.

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# BUSINESS PARTNERSHIPS WITH EDUCATIONAL INSTITUTIONS IN THE ERA OF DIGITAL TRANSFORMATION

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**Abstract:** Changes in the labor market and the development of technologies also require changes in the training programs for students at bachelor's and master's degrees. There must be synchronization between education and practice in order to prepare personnel who will find successful implementation. We live in the era of digital technologies and artificial intelligence, which also requires a different set of competencies. That is why it is important to have synchronization between science and practice and the entry of business into university classrooms. Since its inception, the main mission of the university has been to generate, share and disseminate knowledge that business can invest in its activities. In the conditions of globalization, universities operate in conditions of high competition - curricula, attracting students and teachers, realizing graduates on the labor market. In today's rapidly developing and changing economic and educational environment, the successes of universities and businesses are determined by their ability to implement and adapt innovative technologies. Technological solutions not only improve efficiency, but also open doors to new markets, increase the quality of products and services and create sustainable advantages over competitors. In this article, we aim to examine the need for partnerships between business and educational institutions, the forms of their implementation, the formation of competencies and the requirements for them, the benefits for both parties. The methods by which we will support our thesis are a review of scientific literature and practice. We will defend the thesis that the implementation of new technologies changes professions, which is why interaction between business and educational institutions is necessary to prepare future personnel.

**Keywords:** *digitization, artificial intelligence, competencies, business, educational institutions.*

**Field:** Social sciences

## 1. INTRODUCTION

Science and technology are developing rapidly, we are witnessing numerous changes and innovations, we live in the era of digital transformation of processes and the use of artificial intelligence (AI), which requires the preparation of qualified personnel for business and the economy. Partnerships between business and educational institutions are becoming a key tool for creating innovative educational programs that meet the real needs of the labor market. The use of AI undoubtedly facilitates the process of learning and finding information on a given problem, but students must be able to analyze the results and use digital resources as an aid to guide them to the content. In practice, in services, AI is increasingly being used, thus ensuring seamless connection and customer service 24 hours a day (24/7). Until now, the weak connection between education and business has always been taken into account and it has been commented that students lack practical training. The process is two-sided - on the one hand, business is not active in organizing the learning process, creating joint programs, practical classes, providing internships in a real work environment, on the other - laying the foundation for theoretical training and curricula by universities. With the advent of new technologies, digitalization and AI, continuous innovations require a responsible attitude on the part of business - its representatives to enter the classrooms to transfer practical knowledge, skills and abilities (competences) to students. On the other hand, teachers must also be aware of new technologies in the process of teaching and setting practical tasks, and students must be encouraged to use digital resources in which the sources are duly cited.

In this article, we will examine how cooperation between business and higher education institutions (universities) will organize the learning process so as to prepare future specialists for work in a digital environment and AI.

To this end, a theoretical overview will be drawn up of the required academic competencies that students will acquire after completing their higher education, and those that business requires in AI-related jobs. After a thorough study, conclusions will be drawn (where are we) and recommendations for improving existing practice.

The subject of the study is the set of competencies (academic, personal, in jobs), and the object - universities and business representatives. The topic is relevant and we believe that practical training of

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students guarantees the acquisition of competencies that will ensure their successful implementation and competitiveness in business.

## 2. MATERIALS AND METHODS

To achieve the planned tasks, we will systematize the competencies acquired in education with those of business, to justify the need for joint training programs, the advantages for the countries and the forms of implementation. The methods that will be applied are an analysis of the literature on the topic, a study of practice, statistical analysis and synthesis. The research tasks that we set ourselves are:

1. To make a theoretical analysis of existing practice and new technologies;
2. Systematization of academic competencies;
3. Analysis of the required competencies from business;
4. To justify the need for partnerships between business and educational institutions;
5. To propose forms of cooperation;
6. To clarify the advantages and benefits for both parties.

For the purposes of the study, we will analyze different types of competencies that shape a person as competent and are essential for practice. We will introduce another clarification by defining competency: "a set of knowledge, skills, abilities".

For further clarity, I will examine their nature. In the dictionary of foreign words in the Bulgarian language, competence (from Latin, competence) is defined as "Awareness, experience, knowledge; quality of a competent person; legal capacity" (Милев, 1971).

According to Thomson, the concept of competence contains three components (Thompson, 1998):

- Knowledge about the relevant professional field;
- Skills, defined as the specific ability to perform a particular task;
- A gift or talent that can be added to the performance of a given task.

In the literature, the definitions of various authors for competence are reduced to a set of key skills and knowledge in a certain functional area. With the intention of introducing greater specificity and completeness, competence can be defined as: "a combination of knowledge, work skills and motivation", more precisely, it is formed by a multitude of competencies. Analyzing the types of competencies, we will also form the key competencies in the specified areas in the conditions of digitalization of processes.

According to R. Antova, "By integrating AI into education, educators can optimize communication methods, meet individual learning needs, and create a more engaging and effective learning experience (Антова, 2024)." Iliyan Kostov emphasizes the content of digitalization: "It can be said that digitalization is based on three components: Technological - includes building a digital infrastructure; Educational - training to work with digital technologies; Communication - accessibility to digital technologies" (Kostov, 2023).

## 3. RESULTS

In order to analyze them and highlight the importance of competencies, we will arrange them into three groups:

1. Personal competencies. Competencies are personal qualities that are essential for all roles in life. They are defined as "soft skills". This type of personal effectiveness skills are acquired in the family, society, personal perceptions and value potential and are improved in the process of training and education, possibly also in the workplace or participation in personal development seminars;

2. Academic competencies. These are knowledge, skills, abilities acquired mainly in a school environment, which help to achieve personal fulfillment and at a later stage find a job and participate in civic initiatives. They help in the personal, social and professional expression of modern man. They include cognitive functions and thinking styles. Academic competencies relate to all industries and professions and are determined by the professional direction of learning. For the purposes of the study, we will form key competencies that students acquire in the process of studying in the specialty "Business Administration";

3. Workplace competencies. They represent a set of knowledge (acquired in the process of education), key skills and abilities in a certain functional area. In order to bring greater specificity and completeness, we can define them as a combination of knowledge, work skills and motivation. They are usually applicable to a large number of professions, but we will analyze the key competencies in the field of business administration.

The main goal of training in this professional direction is to provide competencies in various

disciplines in order to provide modern training and good practices to students, to prepare qualified specialists in administration and management for all industries and sectors of the economy.

The main focus is on providing and mastering competencies in a wide profile of academic disciplines, in which students acquire professional competence that meets the requirements of practice and users of personnel in the field of management and the growing need for managers, with competencies for effective management of business organizations and company activities in a dynamic economic environment. Specialized literature on management needs to formulate an applied approach and toolkit for problems related to the analysis and assessment of the culture of communication, ethical principles and norms of behavior, values in communication, digital transformation of processes and trends in communications. The set of academic competencies and competencies acquired in the training process and those required by practice for certain positions, which must be possessed when occupying them, and those that must be acquired subsequently through on-the-job training, has not been identified and unified. The presence of such requirements in turn implies the development of requirements regarding the personal qualities and competencies for behavior and communication (culture, ethics and values) of specialists in this profession. The unification of the requirements and the type of competencies will facilitate the training process, and subsequently the realization of graduates and their career development.

According to the NEAA, 20 universities have received accreditation under the PN 3.7. Administration and management. From the review of the National Qualifications Framework (NQF) and the Level of the Qualifications Framework of the European Higher Education Area (EHEA), we have systematized the following set of competencies and competences in the educational degree “Bachelor”, Level 6, Sublevel 6B (National Qualifications Framework of the Republic of Bulgaria):

Table 1. Academic competencies according to the NQF

Practical and applied skills	Personal competencies
1. Independence and responsibility: Possesses extensive and in-depth theoretical and factual knowledge in the field, including related to the latest achievements in it;	<ul style="list-style-type: none"> <li>• Possesses the ability to administratively manage complex professional activities, including teams and resources;</li> <li>• Takes responsibility for decision-making in complex conditions, under the influence of various interacting and difficult to predict factors;</li> <li>• Demonstrates creativity and initiative in management activities;</li> </ul> Assesses the need for training others to increase team effectiveness.
1. Learning competence: Independently interprets acquired knowledge, connecting it to the application of facts and through critical perception, understanding and expression of theories and principles;	<ul style="list-style-type: none"> <li>• Consistently assesses their own qualifications by assessing the knowledge and skills acquired to date and plans the need to expand and update their professional qualifications</li> </ul>
2. Communicative and social competences : Possesses methods and tools that allow solving complex tasks;	<ul style="list-style-type: none"> <li>• Formulates and presents ideas, problems and solutions clearly and understandably to specialists and non-specialists;</li> <li>• Expresses attitude and understanding on issues by using methods based on qualitative and quantitative descriptions and assessments;</li> <li>• Demonstrates a broad personal worldview and shows understanding and solidarity with others;</li> <li>• Communicates fully in some of the most widely spoken European languages;</li> </ul>
3. Professional competencies : Applies logical thinking and demonstrates innovation and a creative approach when solving non-standard tasks;	<ul style="list-style-type: none"> <li>• Collects, classifies, evaluates and interprets data from the field in order to solve specific tasks;</li> <li>• Applies acquired knowledge and skills in new or unfamiliar conditions;</li> <li>• Demonstrates the ability to analyze in a broader or interdisciplinary context;</li> <li>• Uses new strategic approaches; forms and expresses own opinion on social and ethical issues arising in the work process.</li> </ul>

Source: Author's own systematization according to the NQF of the Republic of Bulgaria ( NQF \_ bg. pdf )

The table shows that the NQF focuses on competencies of a practical and applied nature and professional competencies that build the professional skills of the individual. It is striking that it focuses on the formation of independence, logical thinking, language competence, responsibility, communication skills and professional realization. In our opinion, there is a lack of competencies for ethical professional behavior and emotional intelligence in communications. According to B. Borisov and others, “education

is upbringing, providing knowledge, forming skills, an opportunity for personal development and self-improvement, an opportunity for professional realization, and broadening the worldview” (Борисов, 2024)

Successful implementation also requires the formation of personal competencies (soft skills) such as motivation for achievements, a positive attitude towards the future profession, innovation, independence in making management decisions, trust, emotional intelligence in communication, social responsibility and a positive attitude, etc. In the following table we will summarize the required academic competencies:

Table 2. Academic competencies in universities

Competencies of a practical nature	Personal competencies
1. Ethics, adaptability and flexibility in decision-making	• Emotional intelligence;
2. Organizational culture	• Strategic thinking and vision for the future;
3. Communicative competences	• Teamwork and networking skills;
4. Skills for applying creative methods and generating innovative ideas	• Ethics and value potential;
5. Emotional intelligence	• Creativity and innovation;
6. Project and resource management skills	• Conflict management skills;
7. Financial literacy skills	• Formation of professional motivation;
8. Knowledge and use of software products related to the activity	• Possesses a high degree of autonomy in developing and making management decisions in the administration;
9. Language competences	• Data analysis skills, legal regulations
10. Implementing digital transformation and communications strategies with AI	• Developing key skills necessary for career development.

*Source: Authors' systematization*

Competencies of a practical and applied nature are of essential importance and of exceptional importance for the formation of knowledge, skills and abilities for the successful realization of a person in a professional plan, when establishing contacts and working with clients. There are some overlaps with those required by practice, but here these differences can be overcome by developing joint programs. The overlaps are in several competencies, such as: Language competence, Communicative competence; Digital competence and Innovation.

Among the personal competencies, the skills for managing emotions, teamwork, ethics and value potential, professional motivation and positive attitude predominate.

In the following table, we will summarize and review key competencies for all professions that are required when hiring and occupying a certain position in the administration:

Table 3. Key competencies in practice

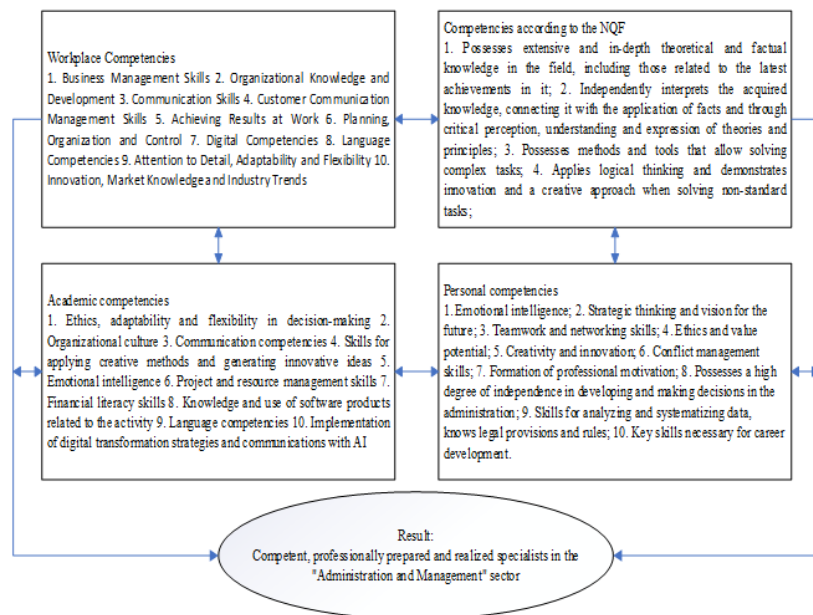
Key competencies	Specific competencies
1. Business management skills	<ul style="list-style-type: none"> <li>• Activity management: arranging meetings, developing schedules, responding to inquiries, handling correspondence, and maintaining a professional image of the office</li> </ul>
2. Knowledge and development of the organization	<ul style="list-style-type: none"> <li>• Time management skills;</li> <li>• Money management skills;</li> <li>• Communication management skills</li> </ul>
3. Communication skills	<ul style="list-style-type: none"> <li>• Positive thinking and mindfulness;</li> <li>• Emotional intelligence;</li> <li>• Ethical principles of behavior, politeness;</li> </ul>
4. Customer communication management skills	<ul style="list-style-type: none"> <li>• Skills for managing relationships with customers and partners;</li> <li>• Telephone and social media communication skills; meeting deadlines;</li> <li>• Initiative and social skills in communication;</li> </ul>
5. Achieving results at work	<ul style="list-style-type: none"> <li>• Focuses on the end result of their work by comparing what has been achieved with the goals and objectives set;</li> <li>• Orientation towards efficiency through good organization, planning and personal professional development;</li> </ul>
6. Planning, organization and control	<ul style="list-style-type: none"> <li>• Skills for planning activities and organizing them in an effective manner;</li> <li>• Skills to perform planned tasks;</li> <li>• Skills for controlling resource consumption;</li> <li>• Competencies for responsibility and correctness.</li> </ul>
7. Digital competencies	<ul style="list-style-type: none"> <li>• Skills for working with AI and digital platforms;</li> <li>• Design skills for creating advertising messages, text formatting;</li> </ul>
8. Language competencies	<ul style="list-style-type: none"> <li>• Skills for writing, researching and analyzing written documents - entering, recording, analyzing, storing or maintaining information in written or electronic format;</li> <li>• Communications in a foreign language</li> </ul>
9. Attention to detail, adaptability and flexibility	<ul style="list-style-type: none"> <li>• Skills for transforming walking;</li> <li>• Skills for responsible behavior in the workplace - accuracy and following instructions;</li> <li>• Adherence to work and meeting schedules; courtesy;</li> </ul>
10. Innovation, market knowledge and trends in the sector	<ul style="list-style-type: none"> <li>• Demonstrate the ability to adapt to new, different or changing requirements;</li> <li>• Innovative thinking, dealing with change;</li> <li>• Adapting plans to new requirements</li> </ul>

Source: Authors' own systematization

#### 4. DISCUSSION

The appointment of positions in the administration is after competitive procedures, which requires the introduction of clear criteria and a set of competencies depending on the position, which should meet Bulgarian conditions and European standards. According to S. Kostadinova, "Young people should have a balanced set of cognitive, social and emotional skills that will help them successfully deal with challenges and transitions on the path to maturity (Костадинова, 2024). "From the academic, practical and applied and personal competencies thus systematized, we offer a set of competencies and competences to be formed in the process of training in the conditions of digitalization:

Fig. 1. Competencies in the “Administration and Management” sector



Source: Authors' systematization

To overcome the differences in the acquisition of certain competencies in the training process, the NQF and practice, it is necessary to harmonize the requirements to ensure that upon employment, graduates will possess competencies that are necessary in the workplace. The need for a partnership between business and education is also necessary because:

- Digitalization of work processes and new trends in AI ;
- Training in a real environment by representatives of practice;
- With the introduction of the practice into education, the educational institution can guarantee its image as an institution implementing an “open” model of education;

In our opinion, the forms of cooperation can be:

- Development of specialized programs with AI technologies;
- Financing of training by businesses;
- Internship and internship in a work environment;
- Joint projects;
- Thesis defense – mentors from practice.

What are the benefits for business? In our opinion:

- Attracting talented students after graduation;
- Solutions for the benefit of business (result of scientific developments);
- Achieving image and competitiveness;

The benefits for the educational institution can be systematized in the following order:

- Analyzing curricula with a practical focus;
- Improving training conditions through funding from practice;
- Technologically equipped offices with the help of businesses;
- Acquisition of practical and applied skills;
- Opportunities for international contacts beneficial to both countries;
- Career development and benefits for students from combining theory and practice.

According to Nikolova “The mistakes and shortcomings of business communication today, and the problems that arise from them, mostly stem from the inability to send and receive messages, to motivate people, to demonstrate listening skills, to follow the rules of business etiquette and company culture, from the lack of competences at work” (Николова, 2022). Borisova, L. et G. Rashkova believe that “new technologies will form new knowledge and application of digital competencies in work and communication, which requires additional training and standardization. Artificial intelligence (AI) lacks competencies such as emotional intelligence, creativity, empathy, etc., which are a factor in achieving effectiveness in communication” (Борисова, 2024). The introduction of new technological solutions can also serve as an inspiring motivator (Тонузова, 2024).

## 5. CONCLUSION

Formation of competencies in the training process together with the requirements of the business should be valid for all who want to have a professional presence in the labor market. This set of competencies (professional and personal) should be embedded in the curricula, and it is advisable that upon graduation students also receive a certificate certifying professional competence. Certification is imposed as an indispensable requirement on the market, similar to a university diploma, which means the same thing all over the world and provides an opportunity for “professional realization and a career without borders and barriers”. Possession of certificates is a guarantee of quality for those who have accepted the challenges of practice and are ready to realize themselves in the conditions of discipline and achievements in the workplace. On the other hand, the certificate is a sign of trust.

The acquisition of a set of competencies by students can be realized by changing curricula, introducing student practices, postgraduate internships and conducting seminars for business representatives. It is time for business and universities to create joint learning consortia to achieve competitiveness and respond to the new realities of learning in a digital environment and artificial intelligence. In this sense, this report is just the beginning of an initiative by both sides – universities and business, for certification in professional competence, to achieve organizational excellence.

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# APPLICATION OF THE MEASUREMENT MODEL OF NON-FINANCIAL PERFORMANCE IN RETAIL

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**Abstract:** The measurement of non-financial business performance in retail represents a significant and growing area of empirical research in disciplines such as accounting, finance, and particularly marketing. The primary objective of this study is to examine the potential for applying contemporary models in the measurement and evaluation of non-financial performance, as well as to assess the extent to which such approaches enhance operational efficiency in retail. For comparative purposes, the study reviews the traditional performance measurement model based on financial information derived from financial statements and conventional financial indicators. However, effective strategic decision-making in the retail sector requires a more complex measurement system for resource utilization, one that incorporates non-financial information. Therefore, in addition to the traditional accounting-based model, a factor-based approach to performance measurement is proposed. Findings suggest that a well conceptualized and effectively implemented model for measuring non-financial performance can serve as a key instrument for initiating strategic change in retail business orientation.

**Keywords:** *finance, non-financial performance, efficiency, marketing, Balanced Scorecard.*

**Field:** Social Sciences

## 1. INTRODUCTION

Performance measurement in retail represents a continuous process within the fields of business finance and management. Contemporary models for measuring non-financial performance in retail establish a specific mode of communication and interdependence between academic disciplines such as finance and marketing. In this way, a systematic approach is established for the analysis and evaluation of business performance, which contributes to greater retail efficiency. The effects of introducing and applying models based on a systemic approach to performance measurement and analysis, primarily non-financial performance, are the subject of this study. The use of non-financial metrics entails specific challenges in the analysis and evaluation of business performance. A short tradition and lack of knowledge regarding appropriate performance levels may lead to distrust in non-financial indicators. In this context, performance measurement systems aim to strike a balance between financial and non-financial metrics. However, there is also a perspective that non-financial indicators are actually leading predictors of financial performance. Based on the defined research objective and scope, this paper operates under the hypothesis that measuring non-financial performance is a necessary condition for the strategic assessment of retail efficiency. However, in order to establish a sufficient condition, broader coverage of both financial and non-financial indicators must be ensured. The paper is structured into two complementary and interrelated segments or perspectives. The first aspect addresses the application of the traditional approach to performance measurement in retail and its corresponding evaluation of efficiency. The second segment illustrates the implementation of a modern, integrated approach to retail performance measurement.

## 2. METHODOLOGY

The traditional model for measuring efficiency is based on data obtained from financial statements and corresponding financial performance indicators. Therefore, the information derived from financial reports remains the most widespread source of insight into retail business operations and efficiency. In the business analysis literature, financial analysis tools occupy a central position in evaluating corporate performance. Kothari and Barone (2012) identify three primary tools of financial analysis: (1) horizontal analysis (trend analysis), (2) vertical analysis, and (3) financial ratios (p. 268). However, financial analysis does not end with horizontal and vertical tools. As Horne and Wachowich (2007) explain, "To assess the financial condition and performance of a business, a financial analyst must examine various aspects of

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the corporation's health. One frequently used tool during these assessments is a financial ratio or index, which connects two financial data points by dividing one by the other" (p. 132). When analyzing the impact of core factors on corporate performance, increasing attention is being paid to non-financial variables, such as goodwill, research and development costs, brand equity, customer satisfaction, intellectual capital, and knowledge (Marnovita. 2020; Marinković, 2023). This shift highlights the growing influence of intangible assets on business efficiency (Lukić & Nikolić, 2009, p. 943; Kumar, 2006, pp. 7–35). Given the significance of intangible assets as drivers of corporate performance, specialized techniques and methods have been developed to manage both traditional financial metrics and non-financial ones. One such approach is the Balanced Scorecard (BSC) framework, introduced by Kaplan and Norton (1992), which integrates financial and non-financial performance indicators (pp. 71–79). The works cited here, along with other secondary sources, serve as the theoretical and methodological foundation for this paper's empirical research into the complex system of evaluating corporate performance efficiency. Morgan et al. (2022), points to "identifying new perspectives, theories, data sources, and analysis approaches that may be productively employed in future research" (pp 462-481). As they state Katsikeas et al.(2016), "researchers have focused on processes and metrics for marketing performance assessment"

### 3. TRADITIONAL APPROACH TO MEASURING EFFICINECY

Measuring resource utilization indicators is not merely a technical activity focused on identifying deviations from target levels. It is a complex endeavor that involves developing appropriate methodologies, measurement techniques, and metrics. Implementing measurement processes within a corporation requires theoretical and methodological knowledge in finance and other economic disciplines, along with their application, which entails selecting and constructing suitable analytical models. Efficiency implies achieving selected objectives with minimal use of available resources, i.e., maximizing the rationality of their use (Domanović, 2010, p. 70). The traditional model of measuring efficiency relies on conventional financial statements and financial performance metrics. Therefore, information derived from financial statements represents the most widespread source of information about corporate operations. The informational power of reports is crucial, considering that relevant analyses based on them lead to conclusions about the corporation's profitability, asset, and financial positions. The informational power of financial statements is particularly significant for external information users (primarily investors and creditors). Comparable and transparent financial statements form the basis for deeper and more liquid financial markets and will strengthen investor confidence, thereby enhancing overall financial stability. According to Anđelković and Zubac (2019), our country has adopted the "IASB's International Financial Reporting Standards project" (pp. 128–137). However, although financial statements do not contain all the information users need, they still provide a framework through which users can compare specific information obtained from other sources.

Differentiation of metrics into financial and non-financial is based on two main criteria: first, whether they are expressed monetarily or non-monetarily, and second, the source of information for their derivation—from the accounting system or other information systems. Financial performance metrics are expressed monetarily and originate from the financial accounting information system. Therefore, the term "accounting metrics" is often used for financial metrics. According to Verweire et al. (2004), all financial performance metrics can be divided into two groups: (1) metrics based on accounting data and (2) market-based metrics derived from a combination of accounting data and the market value of corporate shares (p. 77). In the literature on business analysis and corporate efficiency evaluation based on financial statements, horizontal and vertical analyses and financial statements occupy a fundamental place, as mentioned in the methodological section (Kothari & Barone, 2012, p. 269). Indicators of cost-effectiveness, profitability, and investment represent indicators of business success (efficiency). Conversely, activity indicators—turnover ratios—can be considered both security and success indicators. This is because the turnover coefficient of working capital, on the one hand, significantly affects liquidity and financial stability, and on the other hand, directly impacts business profitability (Žager et al., 2008, pp. 244–245). Security and success criteria are typically opposed in the short term. However, in the long term, security conditions success and vice versa. Therefore, the corporation's financial position always reflects its financial structure, manifested as the composition of capital in terms of ownership and maturity (liabilities) and the method of financing specific asset segments (assets) with own or long-term borrowed capital or short-term loans and liabilities. Illustrating the previously mentioned statements, Ranković (2008) further notes regarding the corporation: "if it does not operate profitably, if its own capital does not cover immobilizations, if cash flow (depreciation and net profit) is insufficient to cover due installments of long-term loans, if inventories are not financed with long-term capital, the financial position is unfavorable

and, sooner or later, its existence will be threatened” (p. 22).

Numerous financial indicators are used to assess corporate efficiency. One of the most significant among them is the profitability indicator. Corporations employ a variety of ratios to express profitability. When viewed independently, none of these indicators meet all needs and interests. Therefore, analysts focus on the most relevant ones, aiming to extract the necessary information from their results to assess different aspects of profitability development. Profitability indicators can be partial or global (synthetic). Partial indicators refer to the net operating profit margin, which is assessed exclusively based on periodic income statements. Company owners (shareholders), bondholders, and long-term creditors are primarily interested in long-term profitability and security. This refers to long-term solvency—the corporation’s ability to generate cash to meet its long-term obligations as they become due (Ivkov & Andelković, 2013, p. 261). Corporate cost-effectiveness is analyzed based on the ratio between operating revenues and operating expenses. Efficiency indicators measure the relationship between income and expenses, showing how much revenue can be generated per unit of expense. The ratio of total revenues to total expenses results in the indicator of overall efficiency or the efficiency of total operations. For macro and micro-level analyses, and for a more complex assessment of operations, it is necessary to calculate additional, so-called partial efficiency indicators. This enables an understanding of the impact of partial efficiencies on overall business efficiency. Naturally, a higher efficiency coefficient is preferable. The procedure for calculating overall business efficiency and other efficiency indicators (as well as previously mentioned performance metrics) is presented in the fifth section of the paper, which discusses financial statement analysis tools. In the conventional approach, accounting metrics dominate. The issue with accounting-based measures is that they are designed for budgetary control rather than strategic formulation. As a result, such “reactive” measurement does not adequately reflect the success of business process execution within the corporation. This highlights the importance of a “proactive” approach to measuring corporate resource utilization. This forward-looking approach monitors performance and the development of the corporate structure. To develop a system of performance indicators aligned with contemporary corporate requirements, the focus must shift from control and budgeting to planning and strategy. It is now evident that a performance measurement system dominated by accounting metrics has become outdated. development, and internal organization. In today’s context, value creation and performance measurement have significantly shifted from material resources to knowledge and information. Strategies based on knowledge and information utilize intangible assets such as customer relationships, information systems, databases, employees with entrepreneurial skills, and motivation for success. Under these new conditions, competitive advantage is the result of knowledge, capabilities, and relationships developed by people, rather than investments in fixed assets or control over financial resources.

#### 4. MODERN APPROACH TO PERFORMANCE MANAGEMENT

The successful functioning of a corporation and its full contribution to high-quality strategic decision-making requires a complex approach to modeling a resource utilization measurement system. At the core of such an approach are real determinants that causally influence corporate resource performance. For this reason, in addition to an integrated approach, a factor-based approach to resource utilization measurement is necessary. This involves identifying and measuring the influence, intensity, and direction of various factors and determinants in the corporation’s business activities. Only a properly designed and implemented system for measuring corporate resource utilization indicators, with an emphasis on analyzing relevant factors, can serve as a significant instrument for initiating and accelerating changes in corporate activities. Measuring resource utilization indicators is closely tied to strategy elements. This measurement should eliminate subjectivity from the decision-making process, allowing management to objectively define priorities when selecting resources. A factor-based approach to indicator measurement supports this function. In this context, numerous current corporate demands necessitate the inclusion of both financial and non-financial performance measures. Regarding marketing as a non-financial component, the following points are crucial: 1. Causal linking of specific marketing activities with financial results to assess marketing’s economic impact; 2. Moving away from traditional, balance-sheet-oriented metrics for evaluating marketing actions; 3. Accounting for risks and capital costs invested in marketing; 4. Linking performance evaluations with marketing strategies to determine incentives for long-term success-driven decisions and actions; 5. Ability to differentiate performance by object of observation (e.g., business areas, product-market combinations), to adequately reflect reality in complex, diversified, and multinational enterprises; 6. Strengthening external and competition-oriented perspectives as a result of establishing market-oriented corporate management (Bauer et al., 2006, p. 182). These identified demands clearly indicate the need for a modern performance measurement system (Temitope & Federal, 2024). Continuous

measurement and monitoring of marketing results is essential, especially given the increasing share of marketing costs in overall expenses and the corresponding rise in budgets. Measurable marketing, i.e., marketing whose contribution to corporate success can be quantified represents a paradigm shift in marketing management (Gligorijević & Veljković, 2022; Lovreta et al., 2024). A performance measurement system identifies areas and products with improvement potential, which are the root causes of performance gaps. Understanding the essential functions of marketing performance measurement helps identify critical evaluations of marketing tools and their direct and indirect effects, which is just as important as planning, as it provides valuable information to drive strategic changes and support the learning process.

A modern corporate performance measurement system includes the application of a multidimensional set of performance metrics—both financial and non-financial, that quantify past results and predict future outcomes. More and more corporations are now measuring areas like customer loyalty—non-financial domains with significant influence on business success. In this way, financial reports are complemented by management's deeper insights into ongoing activities before the fiscal year ends. Non-financial metrics should provide more in-depth analyses than financial ones. Their purpose is to identify relevant performance areas that ultimately reflect in financial indicators. By improving non-financial metrics, positive effects can be achieved in aggregate financial measures—such as return on capital. Therefore, it is necessary to thoroughly examine and identify the causal relationship between specific financial and non-financial metrics. Kaplan & Norton (1992) utilized these ideas in a visionary way by developing the Balanced Scorecard (pp. 71–79). Initially, the BSC was a performance measurement tool, based on the assumption that relying solely on accounting or financial metrics leads to strategic short-sightedness. Financial indicators are lagging indicators; they reflect past actions. As such, they fail to communicate drivers of future performance—namely, indicators of value creation opportunities through investments in intangible assets (customers, suppliers, employees, technology, products, innovations). The BSC, however, combines lagging financial indicators with leading indicators of future performance (Djurićin & Janošević, 2007, pp. 65–67). It balances general performance measures (financial consequences of past decisions) with performance drivers (measures of future results indicating value creation through investments in intangible assets).

Kaplan & Norton (1996) developed the Balanced Scorecard as an instrument incorporating both financial and non-financial indicators. They divided the metrics into four perspectives: 1. Financial perspective: Measures related to profitability and market value; 2. Customer perspective: Metrics that contribute to successful customer and market segment handling (e.g., customer satisfaction); 3. Internal process perspective: Metrics that promote optimization of internal processes aligned with corporate goals; 4. Learning and growth perspective: Metrics that create the environment necessary for achieving the previous three perspectives (P. 76). The BSC recognizes that a corporation's ability to mobilize and utilize its intangible assets is crucial for maintaining a competitive edge. Intangible assets enable corporations to develop long-term customer relationships, serve new markets, launch new products, ensure high-quality production at low cost, and drive continuous improvement (Simons, 2000, p. 186). As Domanović (2010) explains, "A financial report that contains these four dimensions is called the Balanced Scorecard. The concept of balance includes the intention to comprehensively cover both financial and non-financial factors that contribute to a business entity's success in achieving strategic goals" (p. 70). This framework offers a more comprehensive analysis of performance than financial information alone.

## 5. CONCLUSION

It can be concluded that recent literature in the fields of accounting and finance increasingly emphasizes the design of financial statements, the importance of analysis, and the performance measurement systems of corporations. Strategic performance measurement systems that are derived from corporate strategy often require continuous adaptation and improvement. The application of non-financial metrics presents specific challenges in analyzing and evaluating business performance. While on the one hand, strategic performance measurement systems aim to establish a balance between financial and non-financial indicators, on the other hand, there is a view that non-financial metrics should serve as leading indicators of financial performance. Performance measurement systems represent a collection of essential financial and non-financial indicators used by managers to assess corporate efficiency.

From the theoretical and methodological standpoint presented in this paper, it follows that it is necessary to transform the existing traditional performance measurement model into a more complex one that incorporates other non-financial indicators. This implies that, in the design of financial statements, it is essential to include non-financial indicators (annexes) in addition to financial ones. To emphasize the importance of using strategic information, corporate performance reports are increasingly based

on strategic success measures, many of which are non-financial indicators of business performance. This approach supplements conventional financial reporting and financial metrics with drivers of future corporate performance. In doing so, the hypothesis set forth in this paper is confirmed. There is a clear need to strengthen the connection between the marketing and financial functions to create greater value for customers, increase customer satisfaction, and thus improve long-term corporate efficiency.

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# VICTIMS OF SEXUAL OFFENCES AS PARTICULARLY SENSITIVE WITNESSES

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**Abstract:** The authors address the conditions for improving the procedural position of all victims, with a particular focus on victims of sexual offenses, in order to reduce the effects of secondary victimization. Through legislative, descriptive, and comparative methodological approaches, the paper examines relevant issues related to the development of the legislative and institutional framework in the Republic of Serbia, which provides support, assistance, and protection to victims of sexual offenses. Crimes in the domain of sexual relations are among the most severe forms of criminal behavior, as they cause serious and far-reaching consequences that go beyond the usual degree of harm or endangerment to protected rights. In addition to the primary victimization suffered, victims or injured parties also endure various forms of secondary or even tertiary victimization due to the prosecution of these crimes and their perpetrators. Society has a duty to undertake appropriate measures and formal social responses to this criminal phenomenon and the treatment of its victims. By adopting international standards and criminalizing various forms of sexual offenses, Republic of Serbia has initiated the process of improving its legislative and institutional framework to combat these types of criminal behavior. It should be emphasized that, through the adoption of a strategic document and an action plan for its implementation, Republic of Serbia has demonstrated a clear commitment to international standards regarding the assistance, support, and protection of victims and witnesses of all crimes, including those involving sexual violence and moral offenses.

The establishment of the National Network of Victim and Witness Support Services, along with the definition of their competencies, has also introduced the obligation for procedural authorities—including public prosecutors, courts, and police as investigative bodies to conduct individual risk assessments of victims' vulnerability to secondary victimization from the moment a crime is reported. This risk assessment serves as a basis for providing professional assistance, support, and protection from relevant authorities, organizations, and institutions. In this context, it is important to highlight that procedural authorities, before determining the status of a particularly vulnerable witness in a specific case, may obtain the opinion of an assistance and support service or an expert. The goal of this paper is to highlight the fact that conditions are being created in Serbian Criminal Law practice for further improvement in the treatment of victims of sexual offenses. The authors particularly emphasize a good practice example aimed at improving the position of victims of serious crimes, including sexual offenses. Specifically, the paper highlights the guidelines issued by the Supreme Court of the Republic of Serbia to competent authorities regarding property claims of victims. In conclusion, it is noted that by adopting the National Strategy on the Rights of Victims and Witnesses of Crime, along with its Action Plan for implementation (2020–2025), Republic of Serbia has expressed a clear stance on the application of minimum international standards for victim and witness support, as outlined in EU Directive 2012/29. Amendments and modifications to the provisions of the Criminal Procedure Code serve as undeniable confirmation of this commitment.

**Keywords:** *sexual offenses, victims, witnesses, social response, assistance services.*

**Field of study:** Social Sciences – Law

## 1. INTRODUCTION

Only through legally conducted criminal proceedings the state has the ability to prosecute and sanction individuals who have committed crimes against protected interests (Totić, 2024, 70). The ability to freely choose a sexual partner is human right guaranteed by wide range of legal acts. This concerns intimate sphere of an individual, which is protected by the Criminal Law norms of modern states. Practice shows that criminal offenses in the area of sexual relations are present to a certain extent in everyday life. To determine the scope and societal danger of this type of delinquency, the existence of a presumed, so-called high dark number of undetected or unreported cases must be taken into account along with the severity and far-reaching consequences of these crimes. Looking at the current situation in the Republic of Serbia, it is evident that the Criminal Code criminalizes multiple forms of sexual delinquency. This approach undoubtedly deserves praise, as it demonstrates the legislature's unquestionable commitment to following developmental trends and criminalizing all acts that, in practice, violate protected rights and must be safeguarded.

However, from the moment victims or injured parties report these crimes and their perpetrators

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until the conclusion of criminal proceedings, they often face additional traumatic experiences, leading to a sense of secondary victimization. Certainly, the biggest challenge for victims of such crimes is appearing at various stages of the proceedings, repeating their testimony, and potentially facing the perpetrator during trial. This procedural position of victims can, in specific situations, be alleviated by granting them the status of a particularly vulnerable witness, ensuring that relevant state authorities treat them with special care, acknowledging the seriousness of their circumstances. Typically, this applies to cases where the victims are minors, elderly individuals, persons with disabilities or women, especially when the nature of the crime has left severe psycho-emotional consequences that could be exacerbated by the criminal proceedings. Thus, the effective prosecution of crimes against sexual freedom is a complex task that must be addressed through the coordination of various institutions, including the police, prosecution, judiciary, healthcare institutions, social support centers and civil society organizations. Their work should be further strengthened by involving experts with specialized knowledge and experience in working with particularly vulnerable social groups. In line with these efforts, Republic of Serbia in 2020 adopted the National Strategy on the Rights of Victims and Witnesses of Crime (2020–2025) along with an accompanying Action Plan. This document outlines numerous activities in order to improve the position of victims in a comprehensive and systematic manner, regardless of the type of crime. Additionally, various activities have been planned and implemented to enhance the position of particularly vulnerable categories of victims before, during and after criminal or misdemeanor proceedings. Therefore, the objective of this paper is to analyze the scope of these activities and provide potential recommendations for improving the procedural position of victims of sexual offenses.

## 2. CHARACTERISTICS OF SEXUAL OFFENCES

Behaviors in the field of sexual relations that go beyond the boundaries of voluntary sexual acts or natural sexual intercourse are considered criminal behaviors and are referred to as sexual delinquency or sexual offenses. Defining such behaviors is challenging, but it can be stated that they involve sexual contact where one partner unwillingly consents to it or participates without understanding the meaning and consequences of the actions, thereby violating the individual's right to sexual self-determination, freedom and sexual inviolability (Mungee, 2019, p.2). These behaviors represent asocial, antisocial and deviant acts characterized by phenomenological heterogeneity, which violate the sexual integrity, freedom and morality of another person. Such criminal behaviors manifest as criminal offenses and fall within the category of the most socially dangerous acts. The manifestations of sexual offenses often include sexual violence, which involves force, threats and coercion in sexual relations, or the absence of voluntary consent to a sexual act. They can also manifest as sexual abuse or exploitation, involving the misuse of positions of physical or social dependency and hierarchical relationships between the subjects of the criminal case. Additionally, criminalized behaviors in the realm of sexual relations include sexual harassment, which can take the form of various pressures with sexual connotations on another person, thereby violating sexual integrity (Babović & Reljanović, 2020). Forms of sexual offenses also encompass sexual exploitation of others, which may include criminal acts such as human trafficking, facilitating prostitution, procurement and enabling sexual acts, creating, obtaining, or possessing pornographic material, exploiting minors for pornography, encouraging a child to witness sexual acts, or using computer networks or communication tools to commit sexual offenses against minors. Victimization from these acts has a range of effects, including on the physical health of victims, their employment or education prospects, finances and emotional well-being (Walklate, 2007). Victims of sexual offenses often endure physical consequences such as bodily harm, the transmission of infectious diseases, loss of sexual "innocence," unwanted pregnancies and even loss of life. However, these acts also cause internal changes in their psychological well-being, leading to mental suffering that is not immediately visible to the outside world. As a result, victims experience psychological harm, which can realistically lead to mental health issues such as apathy, depression, fear, anxiety, sleep and eating disorders, frigidity and a tendency toward social pathologies (Bošković, 2020).

In addition to the direct violation of the sexual integrity of the passive subject in such crimes, victims may experience other unpleasant and negative feelings and situations, such as humiliation, shame, loss of self-confidence, feelings of inferiority, loss of motivation for professional advancement, job loss, termination of emotional relationships, divorce, fear of the crime being repeated, blackmail and threats from the perpetrator and social condemnation from their community or family (Simeunović Patić, 2021, p. 701). Besides primary victimization, victims of sexual offenses are often subjected to secondary victimization, beginning from the moment the crime is reported or discovered and continuing during pre-investigation and criminal proceedings, and even after their conclusion. Secondary victimization occurs when the

victim is stigmatized by surroundings, accused of being responsible for the crime, or forced to relive the trauma through repeated accounts of the incident to unsympathetic individuals. Such exposure can lead to permanent stigmatization and social marginalization (tertiary victimization) (Ignjatović & Simeunović-Patić, 2023). Research shows that victims are often women, who generally prefer to provide statements to female officers, feeling more comfortable in such situations. This is understandable, as perpetrators of sexual offenses are predominantly male. Female victims are also embarrassed to answer sensitive questions posed by men (Chatorraj, 2006, p. 90). Additionally, sensationalist media reporting on criminal cases poses another significant issue. All these factors inevitably are the reason why there is so many unreported or undiscovered sexual offenses, referred to as the “dark number” of crimes. A noteworthy characteristic of these offenses lies in the offenders, particularly considering criminogenic factors such as causes, conditions, motives and triggers of their deviant and criminal behavior. This is especially significant in cases of recidivism in sexual offenses and the offender’s resocialization (Radojković & Petković, 2017, p. 84). These crimes occur in everyday life or under penitentiary conditions (Pavlović & Radojković, 2016, p. 77), during peacetime or wartime, often motivated by “revenge” stemming from racial, ethnic or national animosity. In many cases, the perpetrator and victim knew each other before the criminal incident (Kipane, 2016, p. 2). Attacks by known perpetrators are more emotionally devastating than those by strangers, as they involve a breach of trust and repeated victimization (Linden, 1999, p. 686). Even listing all the elements of the criminal phenomenon of sexual delinquency would not exhaust the complexity of its essence as a socially harmful phenomenon. A crucial aspect of addressing this specific form of crime lies in the existence of a systemic social reaction and control, both formal and informal. Especially important is the development of a national normative and legislative framework that will enable support for victims or injured parties in cases of sexual offenses.

### **3. THE CRIMINAL PROCEDURE STATUS OF SEXUAL OFFENCES VICTIMS IN THE REPUBLIC OF SERBIA**

When analyzing the criminal procedure status of these victims, it can be stated that it varies depending on their age. The criminal procedure status, assistance, support and protection of minors are largely regulated by provisions on conducting special criminal proceedings when the victim or perpetrator is a minor. In the Republic of Serbia this is regulated by the Law on Juvenile Criminal Offenders and Criminal Protection of Juveniles and the Law on Special Measures for Preventing Sexual Offenses against Minors. As for adult victims, their procedural status or legal position is the same as for the other criminal offenses. In such cases, regular proceedings are conducted against the perpetrator, regardless of the possible traumatic state of the victim. Procedural authorities are mindful of victim protection, though their actions are limited by the legal framework. Measures prescribed by law are calibrated in such a way that they do not excessively infringe on the rights of the defense. This, however, contributes significantly to secondary victimization. In specific cases involving sexual offenses, Criminal Procedure Code provisions regarding particularly sensitive witnesses may be applied (Lečić, 2021). According to these procedural rules, the public prosecutor may issue the decision granting the status of a particularly sensitive witness. Also, the president of the panel can do this. In both cases, it can be done either *ex officio*, at the request of the parties or of the witness. If deemed necessary to protect the witness’s interests, the court may also appoint a legal representative. A particularly sensitive witness is determined based on factors such as age, gender, health condition ... A witness granted this status cannot be directly questioned but only through the procedural authorities, and must be treated with special care, avoiding potential harmful consequences for personality, physical and mental state. Importantly, the questioning of such witnesses may involve psychologists, social workers or other professionals and can be conducted at their home or another suitable location, using technical means for audio-visual transmission. This ensures the process takes place without parties in the proceedings. Additionally, this type of witness cannot be confronted with the accused unless they request it. The procedural authority decides on this, considering the witness’s sensitivity and the rights of the defense. In practice, this method of questioning is also applied in cases of organized crime or war crimes (Totić, 2024, 107). Despite these procedural rules and possibilities, various issues in implementing the aforementioned provisions have been observed in judicial practice, which will be discussed in more detail in the next chapter.

To prevent the effects of secondary and repeat victimization, the Republic of Serbia in July 2020, under its obligations from Chapter 23 (Judiciary) of the European Union accession negotiations and with the support of the OSCE Mission, adopted the National Strategy on the Rights of Victims and Witnesses of Crime for the period 2020-2025, along with an accompanying Action Plan for 2020-2022 and 2023-2025. This strategy aims to establish minimum standards for the rights, support and protection

of victims and witnesses of criminal offenses in line with EU Directive 2012/29 (Bejatović, 2020, 14). This strategic document envisages the formation of a National Network of Services for Support to Victims and Witnesses, composed of existing and newly established services and contact points for informing victims and witnesses at higher courts, public prosecutors' offices, police departments, social work centers, healthcare institutions and civil society organizations. Within the framework of the National Network system, victims and witnesses are provided with primary (general) and secondary (specialized) support and assistance services. Primary services include providing necessary information on the rights and status of victims and witnesses, protection from secondary victimization, ensuring professional interviews with the victim or with their assistance in specially designated or adapted premises, allowing interviews with the victims without their physical presence via audio-visual links, providing free legal aid and ensuring the right to use their language with oral or written translation. This category of services and measures also includes providing information about available support services and secondary assistance services, as well as direct referrals to them. It entails the assessment of victims' specific needs to identify them and prepare an individualized risk assessment for secondary and repeated victimization, privacy protection, advice on the financial or practical consequences caused by the crime (how to compensate for damages and costs incurred during the proceedings)... Also, victims are informed about whether the perpetrator has been released and other relevant information.

Forms of secondary support and assistance include providing emotional, psychological and psycho-social support, medical assistance and specific and integrated support to help victims overcome trauma. This is particularly relevant for victims in special categories, such as sexual offenses victims or intimate partner violence, through participation in individual and group rehabilitation treatments. Moreover, this support includes shelter services and temporary accommodations (safe houses) to protect victims from repeat victimization, inclusion in psycho-social and economic empowerment programs and more (Ministry of Justice of RS, 2022). All the above required measures to appropriately amend the existing criminal legislation and the normative framework regulating judicial organization. In this regard, the Draft Law on Amendments to the Criminal Procedure Code, dated September 23, 2024, proposes amendments to the Criminal Procedure Code. These amendments aim to establish, alongside existing rights, the following rights for victims of all criminal offenses, including victims of sexual offenses: the right to an interpreter or translator, right to free and confidential access to support and assistance services, right to submit proposals and evidence to exercise property claims and propose temporary measures for their enforcement, right to be informed about the types and methods of obtaining medical, psychological and other professional assistance, support and protection, right to be examined as a witness without undue delay, a minimal number of times, and only when necessary for the conduct of proceedings... The draft also proposes amendments about particularly sensitive witnesses. The procedural authority, when deciding on the status of the victim, may obtain an opinion from the support services or an expert. The proposed amendment provides a legal framework allowing the procedural authority to use the opinion or individual vulnerability risk assessment of the victim, prepared by other procedural authorities or experts, when deciding about the status of a particularly sensitive witness. This applies to victims of any criminal offense, including victims of sexual offenses. This provision emphasizes the importance of the individual vulnerability risk assessment conducted by the investigative authorities from the moment they become aware of the criminal offense and the perpetrator. This is particularly significant for victims of sexual offenses, domestic violence or any other form of crime involving violence. Although this is a discretionary legal authority of the procedural body, it provides an opportunity to improve the position of the victim as a particularly sensitive witness.

#### 4. DISCUSSIONS

Based on the conducted document analysis, we observe the following. First, it appears that the provisions regarding the determination of particularly vulnerable witness are insufficiently clear in terms of the applicability of the criteria for uniformly assigning this status, which poses a significant challenge in situations where participants in the proceedings lack adequate training and sensitivity. Furthermore, a potential issue is the insufficient trust in institutions, which may operate in an environment of inadequate inter-institutional cooperation and coordination. In a considerable number of cases, prior to the issuance of the relevant decision, an expert assessment of the consequences or the degree of harm or endangerment to the protected interests of the injured party is required. The realization of this assessment can be problematic due to the costs of the proceedings and their reimbursement through the injured party's property claims. In practice, it is often challenging to implement the treatment of a victim of a criminal offense as a particularly vulnerable witness, primarily due to the lack of material and technical resources of the

procedural authorities, especially in the case of lengthy proceedings. The issues may also relate to the fact that the provisions on granting them this status are treated by the procedural authorities as a discretionary procedural category. Decisions regarding this status are often made only during the investigation phase and not from the moment the criminal complaint for the committed sexual offense is filed, which is when the effects of secondary victimization essentially begin. The individual risk assessment and proposal for providing assistance to the injured party can serve as a basis for subsequent actions by the procedural authorities responsible for determining the aforementioned status. We believe that this approach would reduce the potential for arbitrariness, uncertainty and insensitive handling of such matters. Although it is currently overly ambitious to expect that special proceedings will be conducted for sexual offenses where the victims are adults, we consider it entirely realistic that in cases of sexual offenses, victims should be uniformly or, at the very least, more flexibly granted the status of particularly vulnerable witnesses. This status can, in certain situations, be revised. In this context, it would be significant to introduce binding instructions or guidelines as relevant by-laws issued by higher procedural authorities to ensure uniform procedural actions that guarantee equality for injured parties in accessing their rights. In this regard, as an example of good practice regarding serious criminal offenses, which undoubtedly includes victims of sexual offenses, it is important to highlight the Supreme Court of the Republic of Serbia guidelines. These guidelines aim to improve judicial practice regarding compensation to victims of serious crimes. They recommend that competent authorities resolve property claims of injured parties related to these criminal offenses within the criminal proceedings. This approach eliminates the need to redirect injured parties to resolve contentious issues, such as determining the amount of damages, types of non-material damages and establishing monetary compensation amounts (both material and non-material damages) through civil proceedings, as has been the practice so far.

## 5. CONCLUSIONS

By adopting the National Strategy, along with the Action Plan, Republic of Serbia demonstrates a clear commitment to applying the minimum international standards concerning support for victims and witnesses of crimes, as stipulated in Directive 2012/29/EU. In the Republic of Serbia, the process of establishing Victim and Witness Support Services is underway. These services are conceived as partnership services involving collaboration among various entities, such as judicial authorities, police, social work centers, healthcare services and civil society organizations, whose contributions to this issue are highly significant. Their activities and resources play a crucial role when it comes to victims and witnesses of crimes. Steps have been taken to expand the corpus of rights for victims of all criminal offenses, including victims of sexual offenses. Furthermore, by-laws have been adopted that mandate procedural authorities to conduct individual risk assessments of victims' vulnerability to secondary or repeated victimization. The conditions are being created to improve the normative and institutional framework for societal formal responses and control concerning sexual crimes in the Republic of Serbia. This includes attempts to concretize the procedure for determining a particularly vulnerable witness status. Amendments to Criminal Procedure Code stipulate that, before determining this status, the procedural authority may obtain the opinion of the support service or an expert regarding the individual risk assessment of the victim's vulnerability. This creates a unique and necessary continuity of support, assistance and protection for the victim of a sexual crime from the moment a criminal complaint is filed about the offense and its perpetrator. These provisions set the groundwork for treating the determination of the mentioned status as a standard rather than a procedural exception for all victims of sexual offenses, regardless of their age.

Efforts are underway to enhance the technical competencies (specialization and sensitization) of the authorities involved in detecting, prosecuting and adjudicating such cases, as well as in providing support to victims and witnesses. Finally, it should be noted that the primary intention of the authors of this paper was to bring the necessary attention to this issue through an analysis of the scope and degree of improvement in the procedural position of all victims, particularly victims of sexual offenses, to reduce the effects of secondary victimization. At the same time, by providing recommendations for further improving the status of victims of all criminal offenses as particularly vulnerable witnesses, presented in the discussion section of the paper, the authors aimed to offer support to procedural actors, victims and witnesses of criminal offenses.

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# EGO-MOVING AND TIME-MOVING METAPHORS IN THE LANGUAGES OF BIH, AND THE ROLE OF EMOTIONAL VALENCE IN TEMPORAL COGNITION

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**Abstract:** This study explores how emotional valence influences metaphorical conceptualizations of time in the languages of Bosnia and Herzegovina: Serbian, Croatian, and Bosnian. Building on the cognitive linguistic distinction between ego-moving and time-moving metaphors, we hypothesized that speakers would be more likely to frame themselves as moving toward future events (ego-moving) when the events were positively evaluated, and to frame time as moving toward them (time-moving) when the events were negatively evaluated. To test this, we designed a structured questionnaire featuring twenty everyday scenarios involving future events with varying emotional valence. The questionnaire was distributed to 131 native speakers, who selected between metaphorical expressions and classified each event as either positive or negative. The results revealed a strong and statistically significant association between emotional valence and metaphor preference. Participants overwhelmingly favored ego-moving metaphors for positive events, emphasizing agency, progress, and intentionality, while time-moving metaphors were predominantly chosen for negative events, suggesting passivity, threat, or lack of control. These findings not only corroborate earlier research conducted in English but also demonstrate that the link between emotion and temporal metaphor preference extends into the South Slavic language complex. By focusing on three closely related yet culturally distinct linguistic varieties (Serbian, Bosnian, and Croatian), the study highlights both the robustness and the subtle variability of cognitive patterns underlying temporal discourse. The results contribute to a growing body of evidence that emotional framing plays a systematic role in shaping how speakers across languages conceptualize their movement through time.

**Keywords:** *temporal metaphors, ego-moving and time-moving perspective, emotional valence, South Slavic languages, cognitive linguistics.*

**Field:** Humanities

## 1. INTRODUCTION

Time, though abstract, is one of the most pervasively conceptualized experiences in human language and thought. Because we cannot perceive time directly, we tend to understand it through metaphor, most commonly by projecting it onto spatial domains. As claimed by Lakoff and Johnson (1980), Clark (1973) and Boroditsky (2000), one of the most widely studied metaphorical systems in this context is the contrast between ego-moving and time-moving metaphors, where either the speaker is construed as moving toward future events (e.g., "We're approaching the deadline") or the future is construed as moving toward the speaker (e.g., "The deadline is approaching").

While both metaphorical perspectives exist in many languages, their use is not arbitrary. Cognitive linguistics research has suggested that various psychological, emotional, and contextual factors may influence metaphor choice. For example, speakers tend to adopt an ego-moving perspective when discussing desirable, goal-oriented, or agentive events, and a time-moving perspective when discussing unpleasant, stressful, or externally imposed events (McGlone & Harding, 1998; Boroditsky & Ramscar, 2002; Matlock, Ramscar, & Boroditsky, 2011). This alignment has been linked to broader cognitive mechanisms involving agency, emotional valence, and construal of control (Margolies & Crawford, 2008; Radden, 2003).

Although the ego-moving vs. time-moving distinction has been explored in, for example, English and Mandarin Chinese (Boroditsky, 2001), little is known about how this metaphorical framing operates in South Slavic languages, particularly Serbian, Croatian, and Bosnian. These languages offer an especially interesting case for cognitive metaphor analysis: they share a common grammatical and lexical base, yet exist in distinct sociopolitical and cultural contexts, which may affect how speakers frame abstract

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concepts such as time.

Recent studies have further nuanced our understanding of how temporal metaphors influence cognition and perception. Research by Xu, Jia and Chen (2024) demonstrated that the use of ego-moving versus time-moving metaphors can significantly affect consumers' perceptions of temporal distance to future events. Specifically, ego-moving metaphors, which depict the self as moving toward an event, led participants to perceive events as more temporally distant compared to time-moving metaphors, where events approach the self. This effect was attributed to variations in psychological arousal elicited by the different metaphoric framings.

In a philosophical context, Baron et al. (2023) explored the relationship between temporal metaphors and temporal biases, such as future-bias and near-bias. Their study tested two hypotheses: the moving ego explanation, which posits that the perception of the self moving through time contributes to these biases, and the moving time explanation, which suggests that the perception of time moving toward the self is responsible. However, their empirical findings did not support either hypothesis, indicating the need for alternative explanations for these temporal biases.

Further exploring the impact of metaphorical framing, Stanojević et al. (2023) investigated how ego-moving and time-moving metaphors affect perceptions of climate change. Their study found that time-moving metaphors, which frame climate change as approaching the self, heightened participants' sense of urgency and perceived risk compared to ego-moving metaphors. This underscores the persuasive power of metaphorical framing in shaping public perception of critical issues.

Emphasizing the interplay between emotion and temporal metaphors, Piata and Soriano (2022) investigated how affective biases manifest in metaphorical representations of anticipated events. This study examined whether the association between time and affect emerges in naturally occurring language, particularly when both ego-moving and time-moving metaphors are available. The findings revealed a consistent pattern: positively anticipated events were more frequently described using ego-moving metaphors, whereas negatively anticipated events tended to be framed with time-moving metaphors. This suggests that emotional valence not only influences metaphor selection in experimental settings but also shapes metaphorical language use in everyday contexts, reinforcing the notion that our conceptualization of time is deeply intertwined with our emotional experiences.

Duffy and Feist (2024) provided a comprehensive overview of the role of metaphors in conceptualizing time. They emphasized that temporal metaphors are not merely linguistic expressions but reflect deeper cognitive processes that influence how individuals perceive and interact with time. Their work highlights the significance of metaphor in structuring temporal understanding across different contexts.

Moreover, while some research has explored cross-linguistic variation in temporal metaphors (e.g., Casasanto & Boroditsky, 2008), few studies have systematically examined the role of emotional valence as a determinant of metaphorical framing, particularly in empirical, scenario-based settings. This study addresses that gap by examining whether speakers of Serbian, Croatian, and Bosnian systematically vary their metaphor preferences based on the emotional framing of future events.

Building on previous findings, the current research seeks to test two specific hypotheses:

1. Ego-moving metaphors will be more frequently chosen when the event is evaluated positively, and
2. Time-moving metaphors will be preferred in response to negatively framed events.

To test these hypotheses, a structured survey was administered to 131 native speakers, who evaluated twenty future-oriented scenarios, choosing between metaphorically distinct expressions and classifying each event by emotional valence. The study aims to provide empirical data from a previously underrepresented language group and to contribute to the growing body of evidence that metaphor choice is not just linguistic, but deeply intertwined with emotion, cognition, and cultural perspective.

## 2. MATERIALS AND METHODS

Empirical studies on temporal metaphors have employed a range of methods to investigate how individuals conceptualize time. Prior research has included sentence completion tasks (Boroditsky & Ramscar, 2002), spatial priming experiments (Casasanto & Boroditsky, 2008), and controlled comprehension studies (McGlone & Pfister, 2009), often designed to elicit preferences between ego-moving and time-moving metaphors. These metaphor types frame the relationship between the self and time differently: in ego-moving expressions, the individual moves toward a future event (e.g., "We're approaching the meeting"), while in time-moving expressions, the event moves toward the individual (e.g., "The meeting is approaching"). Such studies have shown that emotional or psychological context may influence metaphor choice, with positive or goal-oriented events tending to elicit ego-moving framing,

and negative or uncontrollable events more often described using time-moving language (Margolies & Crawford, 2008; Matlock, Ramsar, & Boroditsky, 2011).

Following the principles of these prior studies, the current research employed a scenario-based questionnaire to investigate the relationship between emotional valence and metaphorical framing in the languages of Bosnia and Herzegovina - Serbian, Croatian, and Bosnian. The questionnaire consisted of twenty short, future-oriented scenarios, each designed to reflect a plausible life event (e.g., an exam, vacation, interview, or medical procedure). For each scenario, participants were presented with two alternative sentences: one containing an ego-moving metaphor and the other a time-moving metaphor. The participants were asked to choose which sentence sounded more natural to them and to classify the event itself as either positive or negative in their experience.

The study was conducted in April 2025. The final sample included 131 adult participants, all self-reported native speakers of Serbian, Croatian, or Bosnian. All participants were university students residing in Bosnia and Herzegovina. Participants completed the survey anonymously and voluntarily, with no personally identifiable information collected. Before starting the questionnaire, participants were informed of the purpose of the study and gave their consent by proceeding to the first page. Each participant completed all twenty items, yielding a total of 2,620 individual responses.

The questionnaire was constructed and administered in person, as a printed handout, with the sentence pairs randomized in order (i.e., ego-moving or time-moving first) to minimize positional bias. Each scenario was worded to convey emotional context but allowed for individual interpretation of valence. Importantly, while the metaphorical labels were assigned by the researchers, the participant responses reflected spontaneous judgments of linguistic naturalness and emotional categorization. After data collection, each response was coded for participant ID, scenario number, chosen metaphor type, and valence judgment.

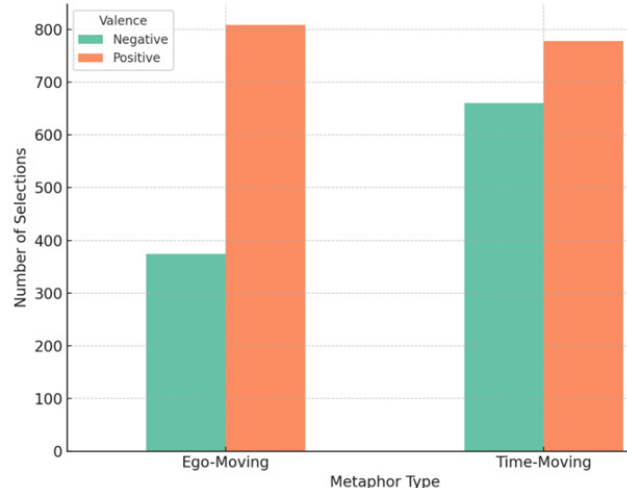
The data was analyzed using descriptive statistics and cross-tabulations of metaphor type by emotional valence. This analytical approach aimed to determine whether emotional framing systematically influenced participants' metaphor preferences across the languages under investigation.

### 3. RESULTS

The study collected a total of 2,620 individual responses from 131 native speakers of Serbian, Croatian, and Bosnian, each of whom completed a questionnaire consisting of 20 future-oriented scenarios. For each scenario, participants selected the metaphorical sentence that sounded more natural to them - one expressing an ego-moving metaphor (where the self moves toward the event) and one expressing a time-moving metaphor (where the event moves toward the self). Additionally, participants were asked to evaluate whether the event in question was positive or negative in their personal perception.

Of the 2,620 responses, 1,586 events (60.5%) were perceived as positive, while 1,034 events (39.5%) were judged as negative. Across all scenarios, 1,438 time-moving metaphors (54.9%) were selected, compared to 1,182 ego-moving metaphors (45.1%), suggesting a mild general preference for time-moving constructions. However, the picture becomes more nuanced when the data is examined in relation to emotional valence.

**Figure 1.** Metaphor type by emotional valence



**Source:** Authors' calculation based on the survey data

Figure 1 (see previous display) summarizes the interaction between metaphor choice and event valence. For positively evaluated events, participants selected ego-moving metaphors in 808 cases, amounting to 50.9% of all positive responses, while time-moving metaphors were chosen in 778 cases (49.1%). In these cases, metaphor preferences were relatively balanced, with a modest edge toward ego-moving framing.

In contrast, for negatively evaluated events, metaphor choice shifted more dramatically. Time-moving metaphors were selected in 660 cases, or 63.8% of all negative responses, while ego-moving metaphors were chosen only 374 times (36.2%). This indicates a substantial preference for time-moving constructions in situations where the event was perceived as threatening, stressful, or emotionally undesirable.

The overall pattern, visualized in Figure 1, shows that positive emotional framing tends to elicit slightly more ego-moving metaphorical constructions, while negative framing strongly favors time-moving expressions. This suggests a cognitive association between affective stance and temporal perspective. When speakers are oriented toward a desirable or goal-directed event, they are more likely to imagine themselves moving forward, approaching the event intentionally. On the other hand, when the event carries negative connotations, speakers are more likely to construe time as moving toward them, suggesting inevitability, external pressure, or diminished control.

This pattern was remarkably consistent across scenarios. For example:

a) In scenarios describing upcoming vacations, birthdays, or graduation ceremonies, ego-moving expressions such as “približavam se ljetovanju” or “idem ka diplomiranju” were frequently selected.

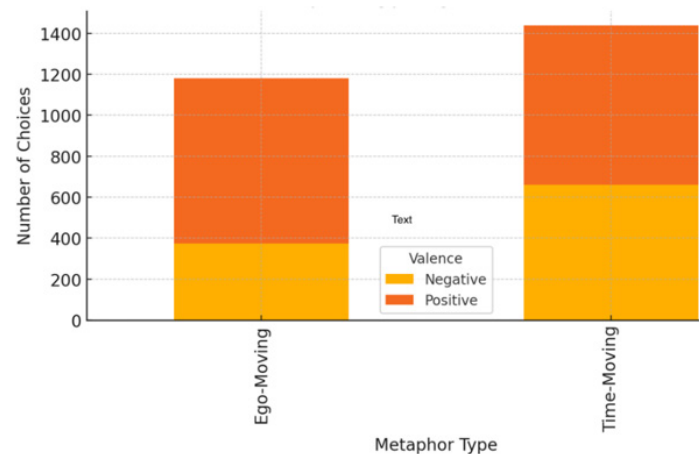
b) In contrast, scenarios involving medical procedures, stressful deadlines, or conflict-laden meetings saw frequent selection of time-moving expressions like “operacija dolazi” or “rok se približava.”

While participants had no explicit instruction or guidance on metaphor categories, their spontaneous preferences reflect a structured and reliable pattern: emotional framing appears to guide metaphor selection in temporal language use. This effect was not limited to a single language or demographic subset; rather, it was observed across the full range of participants, who represented diverse ages, regions, and educational backgrounds within Bosnia and Herzegovina.

These findings support the core assumption of this study that speakers' metaphorical choices in describing time are closely shaped by how they feel about future events. Positive emotions tend to evoke a sense of agency and forward momentum, while negative emotions align with metaphors of being approached by, or overtaken by, time itself.

Data can also be visualized as a stacked bar chart comparing metaphor preferences by emotional valence. Each bar represents one metaphor type, ego-moving on the left and time-moving on the right, and is subdivided into segments based on whether the underlying event was evaluated as positive (orange) or negative (yellow).

**Figure 2.** Distribution of ego-moving and time-moving metaphor choices by emotional valence



**Source:** Authors' calculation based on the survey data

Several key patterns emerge from this visualization:

a) The ego-moving bar is made up primarily of positive events, showing that participants were more likely to describe themselves as moving toward future events when those events were emotionally desirable.

b) The time-moving bar, by contrast, includes a much larger proportion of negative events, indicating that time-moving metaphors were frequently chosen when the event was emotionally negative or stressful.

c) The difference in the distribution of valence between the two bars is visually striking. While the ego-moving bar is relatively balanced (with a slight dominance of positive segments), the time-moving bar is clearly skewed, with negative segments dominating the total height.

This visual representation reinforces the descriptive analysis provided in the results: positive emotions correlate with ego-moving metaphors, while negative emotions are disproportionately associated with time-moving metaphors. The chart makes the cognitive pattern easy to grasp: when time is imagined as approaching the individual, it is more likely to involve something threatening or unwanted, whereas when the individual is moving toward time, the future is seen as a goal or opportunity.

## 4. DISCUSSIONS

The findings of this study offer compelling evidence that emotional valence significantly influences the metaphorical framing of time in the languages of Bosnia and Herzegovina. Across 2,620 responses collected from 131 native speakers of Serbian, Croatian, and Bosnian, clear patterns emerged linking positively evaluated future events with ego-moving metaphors, and negatively evaluated events with time-moving metaphors. While the overall distribution of metaphor choices leaned slightly toward time-moving expressions, it was the interaction with emotional context that revealed the most telling cognitive patterns.

This result supports and extends previous research conducted in English and other typologically unrelated languages. For instance, Boroditsky and Ramscar (2002) demonstrated that speakers' metaphorical construal of time shifts depending on affective framing: when anticipating pleasant events, individuals are more likely to adopt an ego-moving perspective, while unpleasant or stressful situations tend to elicit time-moving framing. Similar conclusions were drawn by Margolies and Crawford (2008), who found that negative events are frequently perceived as metaphorically "coming toward" the individual, evoking threat, pressure, or inevitability. Our findings align with this body of work and suggest that these metaphor-valence associations are not limited to English but appear to be robust across the South Slavic linguistic context as well.

What distinguishes the current study is its systematic application of this metaphorical framework to three closely related language varieties, namely Serbian, Croatian, and Bosnian, within a shared cultural and grammatical environment. The consistency of results across participants, regardless of regional or linguistic identification, suggests that the observed metaphor preferences are not primarily shaped by morphosyntactic variation but instead reflect deeper cognitive and affective structures that cut across these languages.

The data also allows us to make more fine-grained interpretations. The fact that ego-moving and time-moving metaphors were nearly equally chosen in positively framed events indicates that both

metaphors are grammatically and semantically acceptable, but speakers tend to prefer ego-moving expressions when they imagine themselves progressing toward desirable goals (e.g., vacations, promotions, or celebrations). In contrast, the strong preference for time-moving expressions in negatively framed events (e.g., surgery, job stress, legal proceedings) suggests a metaphorical construal in which the speaker is passive, stationary, or even vulnerable — a target approached by the future rather than an agent moving toward it.

This cognitive alignment between affect and metaphor is particularly significant because it reflects how abstract temporal reasoning is grounded in embodied experience. Positive emotional states promote metaphors of motion, agency, and control, while negative states are associated with metaphors of encroachment and lack of agency. Such patterns are congruent with broader theoretical accounts in cognitive linguistics that frame metaphor not merely as a rhetorical tool, but as a mechanism for conceptual structuring of experience (Lakoff & Johnson, 1980).

Additionally, the use of scenario-based elicitation in this study, with everyday, contextually grounded examples, adds ecological validity to the findings. Participants were not prompted to analyze or reflect on metaphors, and instead, they made intuitive choices about which sentence “sounded more natural,” and this naturalness was consistently shaped by the emotional valence of the event in question. This design demonstrates that metaphorical framing operates not only at the conscious level of linguistic awareness but also at the implicit level of emotional-conceptual mapping.

Taken together, the findings suggest that emotion is not merely content within language, but a structuring force that shapes how we conceptualize and linguistically express time. In the context of Bosnian, Croatian, and Serbian, speakers appear to share a cognitive blueprint in which positive futures are approached, and negative futures arrive — a subtle but powerful asymmetry in the metaphorical organization of experience.

## 5. CONCLUSION

This study provides clear evidence that metaphorical framing of time in Serbian, Croatian, and Bosnian is systematically influenced by emotional valence. Through a large-sample, scenario-based design, we demonstrated that ego-moving metaphors are more likely to be used for positive future events, while time-moving metaphors are predominantly associated with negative ones. These findings reinforce the view that temporal language is not neutral, but rather shaped by deeply embodied emotional and cognitive processes. By extending previous work into the South Slavic context, this research contributes to a broader understanding of how affect and metaphor interact across languages, cultures, and speaker communities.

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# DIGITAL MOBILITY AS AN OPPORTUNITY FOR SOCIAL INCLUSION: FORMS OF PARTICIPATION AND SOCIAL PERSPECTIVES AMONG ROMA YOUTH

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**Abstract:** Based on qualitative empirical research conducted within the framework of the project “Digital Divide and Social Inequalities: Levels, Actors, and Interactions,” funded by the National Science Fund at the Ministry of Education and Science (contract No. КП-06-ПН55/16, 2021), this article explores the role of digital practices in promoting the social inclusion of Roma youth by expanding their opportunities for participation, mobility, and empowerment. The main objective of the study is to examine how access to and engagement with digital technologies can serve as a resource for overcoming structural inequalities and achieving greater social visibility. The theoretical framework combines the concepts of digital inequality, digital capital, intersectionality, and agency, offering a nuanced perspective on digital engagement within contexts of social vulnerability. Drawing on twenty in-depth interviews with Roma youth aged between 18 and 35, selected through an intersectional approach that considers gender, educational attainment, employment status, and place of residence, the study adopts a thematic analysis focused on subjective experiences, individual strategies, and the social meanings attributed to the digital environment. The findings reveal that digital mobility among young Roma is neither linear, universal, nor homogeneous. Instead, it is fragmented, context-dependent, and varies significantly in terms of intensity, usage patterns, and forms of participation—ranging from limited access and passive use, through adaptive and pragmatic digital practices, to transformative engagement characterized by empowerment and active agency. Based on the empirical data, the article proposes a typology of three main types of digital mobility—limited, adaptive, and transformative—visually represented through a triangular model. Particular attention is paid to young Roma women who do not conform to traditional family roles and instead leverage digital technologies for learning, self-expression, professional development, and social participation. The study concludes that digital mobility can act as a significant driver for building autonomy, resilience, and inclusion among marginalized groups. However, it also emphasizes that persistent barriers such as material deprivation, limited institutional support, and enduring stereotypes continue to inhibit equitable access to digital resources. The article calls for the development of targeted educational and social policies that address these disparities, recognize the internal heterogeneity of Roma youth, and promote sustainable pathways to digital empowerment through expanded access, tailored training programs, mentorship initiatives, and active engagement opportunities.

**Keywords:** *digital mobility, Roma youth, digital inequalities, social inclusion, intersectionality.*

**Field:** Humanities

## 1. INTRODUCTION

Over the past two decades, digital technologies have established themselves as a key factor for social integration, access to education, the labor market, and public services. They have transformed everyday life and opened new avenues for civic participation, including for groups that have traditionally been marginalized. However, access to the internet and the development of digital skills remain uneven, particularly among socially vulnerable groups (van Dijk, 2020; Warschauer, 2003). The issue of the digital divide extends beyond mere connectivity and encompasses a complex configuration of access, skills, and tangible benefits (Helsper, 2012). In other words, inequalities in the digital realm often reflect and reinforce existing social and economic disparities (Stoilova & Ilieva-Trichkova, 2023). Roma communities in Central and Eastern Europe are frequently among those with the lowest levels of digital engagement (FRA, 2020). Although young Roma are generally more active online, they continue to face structural and cultural barriers linked to poverty, unequal access to education, and a lack of digital capital (Ragnedda, 2018). At the same time, the digital environment also holds the potential to overcome some of these barriers, provided that access is accompanied by opportunities for meaningful and empowering participation. While much of the literature focuses on exclusion, this study asks a different question: how do young Roma use the internet not only for communication and entertainment but also as a resource for social mobility? The article focuses on identifying different types of digital mobility and the factors influencing their formation among Roma youth in Bulgaria.

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## 2. MATERIALS AND METHODS

The present study is based on qualitative empirical methods, specifically a thematic analysis of in-depth interviews, aimed at uncovering how digital practices contribute to the social inclusion of Roma youth by expanding their opportunities for participation and individual mobility. Grounded in the concepts of digital capital (Ragnedda, 2018), lifecourse transitions (Heinz et al., 2009), and digital agency (Lupton, 2015), the research analyzes specific digital practices among Roma youth in Bulgaria, based on in-depth interviews conducted within the project “Digital Divide and Social Inequalities: Levels, Actors, and Interactions,” funded by the National Science Fund at the Ministry of Education and Science. The participants in the study consist of 20 Roma respondents aged between 18 and 35, residing in various regions of Bulgaria. A purposive sampling strategy was applied, employing an intersectional approach (Crenshaw, 1991; Collins & Bilge, 2016) in order to represent a diversity of social positions: different educational levels, gender, family status, economic activity, and both urban and rural environments. The selection aimed to capture the variety of experiences related to digital divide and mobility, without claiming representativeness. Within this framework, the internet is viewed as a space of opportunities, where socially vulnerable youth develop alternative forms of belonging, income, and self-identification despite material constraints. Thus, digital mobility is understood not only as a technological advantage, but as a form of agency—of empowerment and the construction of a future (Couldry & Hepp, 2017). The interviews were conducted in 2024, transcribed verbatim, and anonymized in accordance with ethical guidelines (BSA, 2017). The study has an exploratory character and does not aim for statistical generalization. Its main strength lies in providing a detailed analysis of the meanings that participants assign to their digital practices and revealing the conditions under which digital mobility becomes a means for overcoming social vulnerability.

## 3. RESULTS

In recent years, the development of digital technologies has both deepened social inequalities and created new pathways for participation and mobility. The concept of the digital divide no longer refers solely to the availability of internet access, but also encompasses complex social, cultural, and economic differences that shape how people use technologies and with what outcomes (Hargittai, 2002; van Dijk, 2020; Warschauer, 2003). Helsper (2012, 2021) develops the so-called corresponding fields model, according to which social and digital inequalities are deeply interconnected and mutually reinforcing—not only through access but also through the cultural and institutional resources that users possess. This is particularly evident among young people in vulnerable communities, where physical access may exist, but skills, cultural capital, and institutional support are limited (Livingstone & Helsper, 2007; Seale, 2009). In the case of Roma youth, these limitations are compounded by multiple layers of social barriers—poverty, discrimination, unequal access to quality education, and limited employment opportunities. Research by Mascheroni and Siibak (2021) highlights that in a context of “datafied childhoods,” young people not only consume content but also construct digital identities, practices, and worldviews, which can be critical for their future social inclusion or exclusion. In this regard, Ragnedda (2018, 2022) develops the concept of digital capital, inspired by Bourdieu’s (1986) theories, which posits that access and skills in the digital realm can be converted into other forms of capital—educational, economic, and cultural. However, this capital is unevenly distributed and accumulates under specific conditions of social support, environment, and individual initiative. Digital inequalities arise not only from a lack of technology but also from the absence of opportunities for meaningful participation and the transfer of digital skills into other social domains (Helsper, 2021). The concept of digital mobility builds upon these ideas, emphasizing individuals’ ability to use digital technologies for social advancement and empowerment, including in the spheres of education, employment, entrepreneurship, and access to institutions (Ragnedda & Muschert, 2013). Among young Roma, digital mobility can be understood as an alternative route for overcoming social marginalization, particularly when traditional channels of upward mobility are blocked or inaccessible. The application of an intersectional approach (Crenshaw, 1991; Collins & Bilge, 2016) allows for an analysis of how ethnicity, age, gender, and social status interact to shape differing conditions for digital inclusion. For example, Roma youth from rural areas with low levels of education face not only technical but also cultural barriers that limit their confidence and opportunities for participation. Rather than viewing vulnerable youth as passive recipients of exclusion, this study draws on the concept of agency—the capacity to act in spite of structural constraints (Lupton, 2015). This implies attention to “bottom-up” strategies through which young people use digital tools for learning, communication, small services, or micro-entrepreneurship. As Eubanks (2018) emphasizes, technology often reinforces inequalities but can

also be “reclaimed” by marginalized groups as a tool for voice, presence, and change. The analysis of the in-depth interviews reveals a complex and heterogeneous picture of how Roma youth experience digital space. Despite sharing similar social positions, the participants demonstrate varying levels of digital access, skills, and usage, closely linked to their socio-economic status, education, gender, and place of residence. For most respondents, digital technologies are available primarily in the form of a smartphone with mobile internet, while stationary access or computer use is limited or completely absent. One 19-year-old unemployed Roma participant stated: “I have mobile internet. No fixed internet. I don’t have a computer or tablet, just a phone... The reason I don’t have fixed internet is because I don’t have a separate room or a computer at home.” This highlights the significance of material and spatial conditions within the household. In contrast, another participant—a 26-year-old Roma activist and municipal employee—had full access to digital devices: “I have various digital devices like a smartphone, laptop, tablet... At work and in the office I use a desktop computer with fixed internet.” Despite resource limitations, nearly all participants use the internet daily and see it as a key tool for connection, information, and opportunity. For some, the internet is an integral part of their personal and professional development. One example is an unmarried young Roma woman engaged in various activities. She uses the internet regularly and says: „I find information online, sometimes I search for jobs...“. Her case illustrates how the online environment functions simultaneously as a source of knowledge and social orientation, even when resources and institutional support are limited. The respondents’ digital skills range from basic to advanced, yet a common pattern emerges: digital literacy is predominantly developed outside formal education. Self-directed learning and mutual support within the community are the prevailing mechanisms. As one 17-year-old Roma youth explains: “Whatever I don’t know, I ask here in the neighbourhood... we learned in school, but you quickly forget.” A 24-year-old young mother of two small children adds, “I taught myself through trial and error. No one showed me, I just watch and search.” Even in the absence of confident computer use, mobile platforms provide respondents with a sense of autonomy and control over everyday information and communication. Nonetheless, social inequalities remain evident. Educational disparities are decisive in shaping how the internet is used. A young Roma man, who graduated in Public Administration, not only uses the internet, but actively participates in administrative processes and projects concerning the Roma community: “I organise meetings, send documents, find information. Without the internet, I would not be able to work.” For him, digital literacy is a necessity for institutional work, whereas for others, internet use remains limited to social media and video content. Some respondents explicitly state that digital skills would be useful, but they lack the means to develop them due to the absence of equipment, financial resources, or time: “I would attend a course if it were free... but since I don’t have a computer, I would forget everything again. How can I practise?” comments a young Roma woman living in a rural area. This logic demonstrates that the acquisition of digital capital is inextricably linked to material resources and opportunities for practical application – a notion supported by Ragnedda (2018) and Helsper (2012). Although some participants do not fully exploit the opportunities provided by the digital environment, the desire for inclusion is strongly expressed. Young respondents often perceive the internet not as a “luxury,” but as an essential tool for the future, including for working abroad or starting a small business: “I’m going to pick grapes in France. I need the internet to stay in touch with my parents and to stay informed,” says a 20-year-old Roma man. Another member of the Roma community, a hairdresser by profession, uses Facebook and TikTok to reach clients. These examples illustrate that the internet has become an infrastructure for everyday mobility – social, economic, and communicative. In this context, digital mobility among Roma youth does not follow a linear trajectory; it is fragmented and often improvised, yet it simultaneously reflects agency, adaptation, and a desire for inclusion. For some, the internet is a key to professional realisation; for others, it serves as a means to stay connected to the world or to escape marginality. Despite social constraints, the participants demonstrate active digital practices that merit attention as emerging forms of participation and the construction of digital capital under conditions of inequality. The findings suggest that, beyond serving as a tool for communication and access to information, digital mobility brings significant psycho-social benefits related to personal development, the building of self-confidence, and the broadening of life horizons. In contemporary settings, the ability to navigate and actively engage in the digital environment not only creates new opportunities for education and employment, but also contributes to the formation of self-esteem, identity, and a sense of social adequacy (Selwyn, 2004; Livingstone & Helsper, 2007).

For many respondents, the digital world serves as an “infrastructure of normality” – a way to integrate into what is perceived as contemporary, “modern” life. A young, unmarried Roma woman, engaged in various activities, states: “If you want to keep up – you need to know how to navigate online. Otherwise, you’re lost.” Her statement can be interpreted in light of Couldry and Hepp’s argument, according to which digital presence has become a fundamental mechanism for the “mediated construction of reality” – that

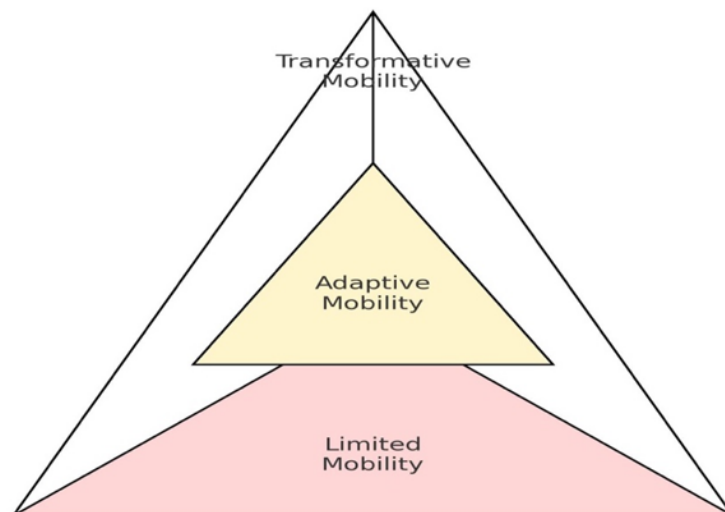
is, one's existence in society is unthinkable without digital visibility (Couldry & Hepp, 2017). At the same time, the self-directed acquisition of digital skills – even when partial and informal – fosters a sense of competence that counteracts deeply rooted feelings of inferiority, often experienced by young people in vulnerable positions (Ragnedda, 2018; Seale, 2009). A young Roma mother of a small child shares: “Before, I didn't even know how to open an email. Now I search for recipes by myself, shop on my phone, and learn new things.” This experience reflects the empowerment that arises from digital self-learning, which, according to Warschauer (2003), is among the most effective means of social integration in the absence of institutional support. Respondents who use the internet to engage in micro-entrepreneurship or enhance their professional visibility demonstrate the highest levels of digital mobility. A young Roma man working as a hairdresser uses Facebook and TikTok as showcases for his work: “Before, I used to wait for someone to tell me where there was work. Now I upload photos, and people message me.” This illustrates how digital capital (Ragnedda, 2018) can be transformed into a tangible social and economic resource, particularly when employed in a strategic and creative context. In this way, the internet does not merely compensate for deficiencies, but opens new pathways for development and social recognition. At the same time, participation in the digital sphere also fosters new forms of civic awareness and social inclusion. A young Roma activist with administrative experience shares: “With the internet, I can help, organise meetings, be part of something. Without it, it's like you don't exist.” This aligns with Eubanks' (2018) observation that in the digital age, presence in the online space is a precondition for social legitimacy, but once mastered, it can also be utilised for collective action. On a conceptual level, these examples illustrate that digital mobility functions as a cultural and social trajectory through which individuals develop skills, self-confidence, and new visions for the future. According to Buckingham and Willett, digital technologies not only alter modes of communication but also reshape pathways of personal growth and transitions in youth (Buckingham & Willett, 2006). In this sense, although uneven, digital mobility among Roma youth contains the potential for new forms of empowerment and expression that transcend traditional models of social mobility. Traditional social roles, especially within the family, still influence some respondents. However, the analysis shows that many young Roma break away from the stereotypical patterns commonly attributed to their background. A number of the interviews include young individuals, including women, who are unmarried, have no children, and are not bound by domestic or caregiving responsibilities, yet demonstrate high levels of digital activity. For these respondents, digital mobility is not an “instrument for adaptation” to an existing family structure, but rather a means of building autonomy, self-confidence, and control over their future. They use the internet for learning, communication, access to information, and at times – for developing a personal brand or social position. It is precisely within their profiles that the digital realm becomes a space for experimenting with identity, belonging, and personal freedom, rather than merely a technology for meeting everyday needs. Particularly telling is the case of a young, unmarried Roma woman, engaged in various activities and free from family obligations. She states: “I love watching different things, reading. Often, I know more than the people around me.” For her, the internet is not just a source of information, but a symbolic resource through which she constructs authority, critical thinking, and new horizons for social participation. This challenges the widespread perception of Roma women as passive and traditionally oriented, positioning her instead as an active subject of knowledge and cultural production. Similar examples are found among other young respondents who live independently or lead non-familial lifestyles, and who do not identify through roles such as “daughter,” “mother,” or “wife,” but through their digital engagement, creative activities, or personal projects. In this way, digital mobility functions not only as a technological process but as a new field of self-awareness and social positioning, in which young people can assume roles beyond those defined by tradition, ethnocentric stereotypes, or institutional expectations. These observations call into question the universality of the category “Roma woman” in the context of digital inequality. Rather than viewing this group as homogeneous, the analysis suggests internal differentiation and variability that are essential for understanding how the digital becomes a space for individual agency and social renewal. An approach that combines intersectionality with attention to biographical individuality reveals a new perspective: Roma women are not merely social roles; they are digital actors – critical, adaptable, at times invisible, but increasingly autonomous. In this context, digital mobility should be understood not only as “technical access” or a “learning resource,” but as a dynamic and socially significant form of self-expression, inclusion, and transformation that disrupts the boundaries of pre-assigned identities. For Roma youth – both women and men – the digital space offers the possibility to become something else: more free, more connected, more visible. Based on the interviews, we can distinguish different types of digital mobility that reflect not only levels of access and skills but also the ways in which the digital environment is integrated into personal life, self-identification, and social participation among young Roma. The resulting empirical typology shows that digital mobility is not one-dimensional, but varies in terms of intensity, awareness, and transformative potential. As

illustrated in Figure 1, three main types can be identified:

- **Limited mobility**, characteristic of respondents with low resources and skills, where the internet is used primarily for entertainment or basic communication;
- **Adaptive mobility**, where digital technologies are used pragmatically and in response to specific needs – for learning, work, shopping, or staying informed;
- **Transformative mobility**, where the digital environment becomes a space for self-development, visibility, and the construction of new social roles.

This visual framework summarises the diverse digital trajectories along which young Roma navigate and highlights the role of the digital as a social resource, activated to varying degrees depending on context, gender, personal motivation, and supportive environments.

**Figure 1. Types of Digital Mobility among Young Roma**



*Source: Author's own elaboration based on empirical data, visualised through a triangular model*

#### 4. DISCUSSION

The findings of this study provide important empirical grounds for viewing digital technologies not merely as tools for access or communication, but as platforms for identity formation, self-education, and symbolic mobility among youth from marginalised communities. As Selwyn (2022) notes, digital technologies play a dual role – both as instruments for integration and as sources of new challenges to social justice. In the case of young Roma, digital mobility appears as a contextually driven phenomenon that reflects, but also questions, structural inequalities. The typology developed herein serves as an empirical framework for understanding the diversity of digital experiences within a vulnerable social group. The data do not confirm the so-called “deficit model,” but rather reveal agency, creativity, and strategic adaptation in digital practices, even under conditions of economic insecurity and social marginalisation. The presence of young Roma – particularly women – who do not follow traditional social roles and who use digital tools for self-learning, communication, or even entrepreneurship, challenges widely held assumptions of cultural passivity or technological exclusion. These young people reimagine the digital space as a field of autonomy and opportunity, even when access is limited to mobile devices. The significance of these observations lies not merely in the fact that technologies are used, but in how they are appropriated to reshape everyday life, social relations, and future horizons. This research contributes to the growing body of scholarly literature that views digital inclusion as a complex, dynamic, and evolving process, shaped by individual motivation, social constraints, and contextual resources. The proposed model of digital mobility enables a more nuanced reading of digital engagement, especially in intersectional contexts where ethnicity, gender, age, and social status interact in specific ways. Recognising these dynamics is essential for developing interventions that go beyond mere access provision, and instead support meaningful participation, digital agency, and sustainable empowerment.

## 5. CONCLUSION

This study demonstrates that digital mobility among young Roma in Bulgaria is a multidimensional and dynamic phenomenon, which cannot be reduced to mere access or lack of access to technology. Instead, the analysis of the interviews reveals diverse trajectories of engagement with the digital environment, influenced by factors such as education, gender, social status, motivation, and individual initiative. The young respondents exhibit varying degrees of digital capital, ranging from basic, passive use to the strategic appropriation of online resources to achieve specific goals: employment, communication, visibility, learning, or civic participation. In this context, digital mobility does not simply reflect the social position of these youths, but often becomes a tool for rethinking and transforming that position. Particular attention was given to the role of Roma women, who in many cases do not conform to traditional roles, but instead use the digital environment to build autonomy and personal authority. This agency, expressed through digital activity, highlights the need to move beyond stereotypes and to account for intra-group heterogeneity in the study of social inequalities. The proposed model of three types of digital mobility (Figure 1) contributes to the development of educational and social policies targeted at vulnerable youth. Support for digital inclusion should be considered not only from a technical perspective, but also through cultural, gendered, and social lenses, with a focus on active participation, informal learning, and the promotion of digital empowerment. In conclusion, digital mobility among Roma youth is not merely a reflection of inequalities – it represents a potential means for overcoming them, provided it is recognised, supported, and cultivated as both a social and personal resource. While the study provides valuable insights into the digital practices of Roma youth, its qualitative nature and limited sample size mean that the findings should not be generalized, but rather understood as illustrative of broader trends and individual trajectories.

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# PHILOSOPHY OF WAR IN THE AGE OF ARTIFICIAL INTELLIGENCE: ETHICS, TECHNOLOGY, AND THE TRANSFORMATION OF MILITARY POWER

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**Abstract:** War has always been a complex phenomenon that is simultaneously the subject of philosophical, moral, legal and technological re-examination. With the emergence of artificial intelligence and autonomous systems, war as a phenomenon is experiencing a fundamental transformation, not only in operational and tactical terms, but also in conceptual and normative terms. New technologies are changing the way wars are fought, but also the way wars are understood. Instead of war as human decisions and conflicts, contemporary studies of war imply a war in which algorithms, machines and autonomous systems make decisions with potentially deadly consequences, often without direct human oversight. This paper aims to take an interdisciplinary look at the impact of artificial intelligence on the nature of modern warfare, through the intersection of ethics, technology and the transformation of military power.

Starting from a historical overview of philosophical ideas about war, to contemporary approaches, the article explores how artificial intelligence challenges traditional paradigms and questions categories such as courage, responsibility, subjectivity and ethical choice. In particular, the focus is on the transformation of just war theory, both in terms of the justification for entering into war (*jus ad bellum*) and in terms of the principles within war (*jus in bello*). The use of autonomous weapons systems opens up a number of moral dilemmas: who is responsible for the decisions made by a machine? Can an algorithm be the subject of moral assessment? What is the role of man in the context of delegated lethal power?

The theoretical framework of the work combines philosophy, ethics, technological development and military theory, which is the basis of contemporary security studies. On the other hand, the triad of ethics, technology and transformation of power implies that the work considers normative and empirical aspects. While the use of the phrase "philosophy of war" points to a deeper, more fundamental reflection, not only on the application but also on the meaning of warfare in the age of artificial intelligence. The previously presented facts indicate how artificial intelligence fits into the strategic matrices of great powers and how new technologies are changing geopolitics, becoming a new source of global hegemony. Dominance in the field of artificial intelligence today has almost the same meaning as nuclear superiority once did.

The aim of the paper is not only to describe technological changes, but also to critically review the need for new ethical, philosophical and legal frameworks that will enable the understanding and regulation of war in the digital age. The research concludes that it is necessary to reexamine the fundamental categories that determine war, from subjectivity and responsibility, to the concept of the enemy and the ethics of violence, in order to adequately respond to the challenges brought by the age of artificial intelligence.

**Keywords:** *artificial intelligence, war, philosophy of war, autonomous systems, ethics of war, responsibility, geopolitics.*

**Field:** Social Sciences

## 1. INTRODUCTION

Artificial intelligence in the modern concept of war is causing a fundamental change in the domain of responsibility, justice and human control. If autonomous systems take over decisions that have so far been the domain of human reasoning, the question arises whether war can remain morally justified when it goes beyond the framework of human agency. Just war theories and traditional ethical categories are called into question, because artificial intelligence operates on the basis of algorithms that cannot sense human suffering, which leads to new philosophical dilemmas about where responsibility for the use of force lies and whether it is possible to maintain justice in war in the era of digital decisions.

The philosophy of war has always been a key framework for understanding the essence of armed conflicts, as well as their moral and political implications. It connected human nature with the concept of force, responsibility and necessity, serving as a corrective mechanism in times of crisis and conflict. Today, however, modern man is increasingly moving away from this tradition. Accelerated technological development and the digitalization of all spheres of society make it increasingly difficult for even the actors

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of war themselves, scientists, military leaders, and philosophers, to recognize the essence of the conflict. As Starčević and Kajtez emphasize, modern society turns its back on the wisdom that has been created over centuries, denying the importance of philosophical reflection, although it is precisely this that is just as necessary today as in the past (Starčević & Kajtez, 2024, p. 7). The lack of philosophy only increases the “fog of war”, questioning ethical norms and moral awareness in conditions of increasing machine domination.

The modern era, marked by the emergence of artificial intelligence, poses new challenges to the concept of war. Artificial intelligence is not just a tool in the hands of the military, it is becoming an autonomous decision-maker, with the potential to delegate or even take over functions that have so far been exclusively human. This opens up topics that reach to the very core of moral responsibility, justice and control. Can a system devoid of subjectivity and ethical reasoning decide about life and death? Is it possible to apply the classical theory of just war in the age of algorithmic rationality?

From the standpoint of philosophy, ethics and military power, it analyzes the impact of artificial intelligence on the understanding of modern war, the concept of responsibility in armed conflicts and on the transformation of military power in the contemporary international system. The thesis of the work implies that technological innovations in warfare are not only a question of technique, but also a deep philosophical transformation that questions subjectivity, the dominance of human control and the legitimacy of the use of force. Although today's operations increasingly involve autonomous systems and algorithms, most states still rely on traditional methods of warfare, which indicates the existence of parallel paradigms, classical and digital (Pavić, Jelić, & Đokić, 2024, pp. 46-47).

The emphasis is placed on the concept of just war, not only in the context of human subjectivity, but also in light of the question of whether an algorithm can wage a “just” war. Numerous contemporary authors question the relevance of just war theory, pointing to its historical context and the transformation of the nature of armed conflicts. In conditions of delegated decision-making and algorithmic violence, the issue of proportional use of force in the protection of the common good becomes increasingly problematic, and the ideal of peace becomes increasingly unattainable (Nicolaidis, 2024, p. 15).

Contemporary conflicts, such as the war in Ukraine, the internationalized conflict in Syria, and the events in Gaza after 2023, point to the problematic nature of applying classical criteria of justice in the era of hybrid and technologically mediated violence. In this context, philosophy is no longer a luxury reflection; it becomes a necessary instrument of analysis and ethical navigation in the conditions of the new paradigm of war.

The main research question of this paper is: How does the use of artificial intelligence change the philosophical and ethical dimension of war? The answer to this question is built through the hypothetical-deductive method and interdisciplinary analysis at the intersection of philosophy, ethics, and technology. The paper is structured in three parts: the first chapter analyzes the philosophical foundations of war, the second deals with the new paradigm of war in the age of artificial intelligence, and the third explores the relationship between ethics, power, and the transformation of military strategy in the modern era.

## 2. PHILOSOPHY OF A “JUST” WAR

War is a sociological phenomenon that has accompanied human society since the beginning of its development. The philosophy of war and peace has been an integral part of the thoughts of the greatest philosophers the world has ever created. Human society develops and exists in periods of war and peace. The achievement of the goals of man, people, nations, states and alliances has usually required war sacrifice and engagement. Whether it is a necessary process and whether there is another way to achieve interests is a question that no one has been able to fully answer even today. Is war just and is it moral to take someone else's life for the sake of one's own interest, even if it is above the individual. However, human thought can interpret and understand human war, but the perception that a machine independently decides to neutralize a person opens up new ethical questions. The question of the ethical use of artificial intelligence in modern war is perhaps the most important question facing man in the 21st century. The central philosophical stance in the conflict between the two sides remains the issue of a “just war”, regardless of the transformation and evolution of the conflict.

Plato's (Greek: Πλάτων) thought experiment with the Ring of the Ring explores the question of whether people act justly out of inherent moral conviction or because of social consequences such as punishments and rewards. Plato questions the natural nature of morality, noting that it is often maintained by social norms. Just war theory in international law explores the moral foundations of warfare, determining when war is justified (*jus ad bellum*) and how it should be waged (*jus in bello*). Modern just war theory includes principles such as proportionality and distinction, which limit the use of force and protect civilians

(Molendijka, 2025). The 2003 Iraq War is an example of a violation of these principles. Questionable justifications and the absence of United Nations approval call into question the legitimacy of the war, and violations such as the abuse of detainees at Abu Ghraib prison undermine ethical legitimacy (Jagodzinski, 2024).

In the 21st century, just war theory faces new challenges such as humanitarian interventions, asymmetric warfare, and non-state actors, which complicate the application of traditional principles. Legal positivism and moral absolutism are two approaches used to assess the ethics of war. Positivism is based on codified laws but fails to cope with new forms of warfare, while absolutism advocates universal moral principles but can be subjective. Just war theory must adapt to new security challenges and technological advances (Syed, 2025). Ultimately, a revised just war theory should take into account new forms of warfare and the role of non-state actors, ensuring that it remains relevant in contemporary conflicts. To understand how new technologies affect the understanding of war, it is necessary to first return to the classical philosophical concepts that have shaped understandings of war throughout the centuries.

The philosophy of war has always been intertwined with questions of human nature, politics, morality, and technology. In Heraclitus' (Greek: 'ρόκλειτος' 'φέσιος) thought, war is the "father of all things", the initiator of change and creation. For Plato, war is the result of disharmony in the soul and society, while for Thomas Hobbes it arises as a product of fear and the desire for security in a state of natural chaos (*status naturalis*). These early ideas reveal that war is more than a physical conflict; it is a mirror of the human condition. Hobbes in his work *Leviathan* presents war as a state in which "man is wolf to man", but at the same time points to the necessity of creating a sovereign, who will prevent a return to anarchy with authoritarian force. In the context of artificial intelligence, the question arises who is the "sovereign" when an algorithm takes control, man or machine.

Immanuel Kant, unlike Hobbes, in his work "On Perpetual Peace" develops the idea of the possibility of a lasting peace based on reason, a republican orientation and international institutions. He introduces a moral framework that later becomes the basis for the concept of a just war, where war must be a last resort, proportionate and limited (Kant, 2024). This raises the dilemma: can artificial intelligence, devoid of moral sense, distinguish between "just" and "unjust"?

The fact is that the war waged by algorithms threatens to become invisible, but all encompassing. These philosophical perspectives indicate that war is more than a physical conflict. It is a space where technology, morality and politics intersect. With the advent of artificial intelligence, this space takes on a new dimension, one in which humans are no longer the sole bearers of decision, responsibility and power.

### 3. A NEW PARADIGM OF WAR

The philosophy of war, analyzed through classical philosophical theories of war, including Plato, Heraclitus, Hobbes, and Kant, points to the concepts of necessity, justice, and the relationship between power and morality in the context of armed conflict. To understand how new technologies affect the understanding of war, it is first necessary to return to the classical philosophical concepts that have shaped the understanding of war through the centuries. Two completely different approaches to the theory of warfare, direct and indirect, and both completely variable in practice, were given to us through their theoretical approaches by Carl Philipp Gottfried von Clausewitz and Sir Basil Henry Liddell Hart. Although they lived in different times, both made an immeasurable contribution to the science of war with their theoretical approach. On his path to mediocrity, Liddell Hart had to encounter the ideologist of the opposite theory, Clausewitz, who wrote that the sole aim of war was the destruction of the bulk of the enemy's forces on the battlefield and that this was most successfully achieved by a decisive battle (Hart, 1952, p. 9). Defining the position and analyzing the impact of artificial intelligence in the domain of national security, and therefore war, cannot be considered without theoretical assumptions. Among the large number of significant strategists in the history of war, a significant number of theorists stand out. However, for the purposes of this research, the authors are of the opinion that it is Clausewitz and Hart who deserve to be considered through their theoretical postulates in the context of the application of completely new technologies and dimensions of warfare.

Clausewitz is recognized as someone who laid the foundations of the modern system of the use of military force in the modern state. His work "On War" is without equal in the basis of all subsequent strategic considerations in the field of the use of armed force. In his theory of war, Clausewitz insists on war as "the continuation of policy by other means". For him, war is a rational activity in the service of state interests, but always unpredictable due to the "fog of war" and the human factor (Clausewitz, 1951). With the introduction of artificial intelligence, the question is whether algorithms can reduce this fog, or do they create a new fog of digital irresponsibility? On the other hand, Liddell Hart, with his relatively modest

military experience and his own brilliance, has presented a new indirect approach to the use of military force, newer, more modern than Clausewitz, and therefore closer to today's military thinkers.

Various authors have analyzed the position of artificial intelligence at the level of strategy, doctrine, the operational planning process, and ultimately the use of military forces. Among others, Cameron Hunter and Bleddyn E. Bowen have argued that proponents of the application of artificial intelligence predict a major impact on the decision-making process in the use of military forces, which is fundamentally wrong. The nature of war requires decisions based on abductive logic, while machine learning relies on inductive logic. The abductive approach to theory development rejects the concept of deductive and inductive approaches as separate, since it is not a choice of one or the other, but an attempt to reconcile these approaches so that research can begin with the deductive and continue with the inductive approach. These two forms of logic are not interchangeable and therefore limit the useful use of artificial intelligence in command at all levels. This logical approach suggests that more data or more computing power does not necessarily lead to better decisions. (Hunter & Bowen, 2023). Indeterminacy, friction, chaos are just some of the characteristics of war that characterize the complete inconsistency and unrepeatability of war. This view of war is entirely consistent with the algorithmic form of decision-making of artificial intelligence. There is no future war that could be fought according to exactly the same criteria as any previous one. In the same way, Clausewitz defined that war in the "real world" of people and chaos cannot be reduced to "some kind of algebra of action". If all variables and outcomes could be known and if war were a purely rational matter, there would be no need for the physical existence of armies, but only for theoretical relations between them. (Klauzevic, 1951).

Some authors, such as Rodrick Wallace, have used cutting-edge tools from the fields of information and management theory to examine the canonical and idiosyncratic ways in which real-time cognitive systems fail when confronted with the fog of war and the constraints of friction. He has concluded that no one can navigate war without being changed by the effects of Clausewitz's friction. (Wallace, 2018).

In the 20th century, Liddell Hart developed the theory of the "indirect approach", emphasizing the importance of technological developments in warfare. After his experiences in trench warfare, he advocated the integration of land and air forces through radio communications. Although he met with resistance in Britain, Germany adopted his ideas through the "Blitzkrieg", relying on the "Junkers - Ju 87" aircraft and encrypted communication using the "Enigma". The Allies later recognized the value of this strategy, as confirmed by a letter from General Dorman Smith (Hart, 1952, p. 19). Alan Turing's work at Bletchley Park to break the Enigma code not only shortened the war, but also laid the foundations for the digital era (Hoover, 2006).

Today we are well into the fifth generation of warfare, where one of the stated goals is to conquer the human mind and influence its thought (Krishnan, 2022). The very foundation of this modern warfare is represented by technologies such as artificial intelligence. Automation and the pursuit of autonomous military platforms are a direct consequence of the development of the digital sphere of technology and are developing completely unstoppably together with artificial intelligence.

Clausewitz's fundamental philosophical approach indicates that artificial intelligence, without understanding the context and human cognitive abilities cannot be a relevant factor in making decisions in war. Its application is justified in analytical processes that rely on a limited number of variables and logical operations. If artificial intelligence were to lead a decisive battle, it would most likely absolutize the achievement of the goal, neglecting resources and strategic expediency. Today's hybrid wars, often based on indirect methods, confirm the relevance of the indirect approach strategy advocated by Liddell Hart. The development of artificial intelligence in war must be based on a theoretical understanding of war. Philosophical and technocratic approaches must be equally represented in the academic community, because only such a framework can lead to an ethically grounded and scientifically justified use of artificial intelligence. At that stage, man will truly understand the place and role of general artificial intelligence.

#### **4. ETHICS, POWER AND THE TRANSFORMATION OF WAR**

The question of just war, which this paper places at the center of the discussion of the relationship between power, ethics, and technology, implies that there is a truth in the art of war that many overlook, which is that success without ethics is empty. Graham Wallington argues that true victory is that which brings harmony, not disillusionment, and that morality has always been the foundation of that harmony. Artificial intelligence, a marvel of human ingenuity, must be guided by the same principles that guide the warrior and the sage. Any victory that is not in harmony with the principles of International Humanitarian Law is a Pyrrhic victory (Wallington, 2024). The ethical norms of using artificial intelligence in war are discussed by Mariarosaria Taddeo, a professor at the University of Oxford, who emphasizes the postulate

of just war, while considering artificial intelligence as a means of defense. She emphasizes the key advantage of artificial intelligence in defense against enemies, but also argues that we need to find a new way to attribute responsibility for the actions performed by artificial intelligence systems in defense and to ensure that this way is justified and fair. To do this, we need new ethical thinking (Taddeo, 2024).

With the integration of artificial intelligence into military operations, the ethics of warfare are taking on a new, more complex dimension. Deciding on the use of force, distinguishing between soldiers, or those who use force, and civilians, and assessing the risk and justification of combat actions are all decisions that have traditionally belonged to humans, or military decision-makers. However, as autonomous systems become more precise and capable of making these decisions, profound ethical questions arise that consider the responsibility, subjectivity, and legality of using these systems. The pace at which future conflicts supported by artificial intelligence will be fought will confirm the complex and chaotic nature of modern warfare (Johnson, 2022).

One of the key ethical issues in the use of artificial intelligence in warfare is the question of liability, that is, who is to blame if an autonomous system makes a mistake? This requires a new rethinking of ethical and legal norms, whereby traditional principles of the law of war must be adapted to the reality in which machines make decisions without human intervention. With the transformation of war, the moral code is also changing, and theories such as the principle of double effect, which justifies action if the benefit is greater than the harm, provided that there is a clear distinction between intention and effect, are becoming increasingly difficult to apply in the context of algorithmic decisions. The greatest challenge is the absence of subjectivity. Although algorithms are capable of quickly processing data and identifying threats, they do not possess the ability to empathize, moral reasoning, or cultural sensitivity. Therefore, the question is whether the philosophy of “cold rationality” of artificial intelligence can be justified in modern combat operations at all (Namestiuk, 2023). War devoid of morality, subjectivity and legal norms represents a regression, i.e. a return to a pre-civilizational level, where humanity risks losing its essential humanity.

Power is a central factor in international relations from the point of view of realist theory. Likewise, the potential of global power and the security dilemma of artificial intelligence is one of the central factors in assessing the impact of artificial intelligence on the development of future national security strategies (Pavić & Beriša, 2024, pp. 20-21). Michel Foucault considers power through knowledge and control of information, while Jean Baudrillard, through the concept of simulation in the era of mass culture, analyzes the “simulacrum of war” and implies the fact that we no longer distinguish between reality and war as a media event (Slović, 2019). It can be concluded that whoever controls artificial intelligence will very quickly control the global order. In this way, artificial intelligence gains a geopolitical context and it is certain that its development will also condition new global implications. The fact is that the upcoming multipolarity, as well as stagnant globalization, is precisely the opportunity for artificial intelligence to be the factor that will ensure that certain global actors such as the PRC become the new global leader.

Artificial intelligence as a technological entity questions human sovereignty in decision-making, posing new moral dilemmas in the 21st century. Considering the relationship between subjectivity, responsibility and power in the age of digitalized warfare is perhaps the central question of the transformation of war in the age of artificial intelligence.

The world of cyberspace and artificial intelligence opens up space for a new “Cold War 2.0”, in which the threat is often invisible, decentralized and algorithmically managed (Vacarelu, 2021). Instead of classic armed conflict, cyberattacks, information manipulation, and cognitive operations dominate. In such an environment, the threat of autonomous systems operating without human intervention becomes a serious security and ethical challenge. The fact is that three key processes mark modern warfare:

- Automation and autonomy, where combat systems increasingly operate independently;
- Cyberspace as a new battlefield, where attacks are being conducted on infrastructure and consciousness;
- Information dominance, where power is defined by the ability to manage data and perception.

Information is becoming the most powerful weapon. Artificial intelligence in this context is no longer just a tool, but a new subject of war, that is, a factor that affects not only the technological factor, but also the very concept of power. It can be concluded that the contemporary philosophy of power is increasingly shaped by “algorithmic dominance”, where technology and artificial intelligence expand the concept of power from physical domination to digital control and information management. War is no longer fought only with weapons, but also with algorithms, which opens up new philosophical and ethical challenges. On the one hand, artificial intelligence promises a more efficient use of force and a reduction in human casualties, but on the other hand, it carries the risks of dehumanization, loss of moral responsibility and disruption of geopolitical balance. In a war waged by machines, the key question is: what is the role of

man in such a conflict? Without constant philosophical re-examination, we risk losing the central place of man in understanding war and power.

## 5. CONCLUSION

Modern warfare has transcended the boundaries of the classical understanding of armed conflict and is increasingly moving into the realm of digitalized, automated, and algorithmically driven conflict. This transformation also requires a new understanding of categories such as subjectivity, moral responsibility, justice, and power. This paper has shown that the use of artificial intelligence in warfare is not just a technological novelty, but also a profound philosophical and ethical turning point. Starting from classical philosophers such as Heraclitus, Plato, Hobbes, Kant, and Clausewitz, the paper argues that war is more than physical violence; it is a mirror of human nature, politics, and technological development. Modern military practice, through the development of autonomous systems and algorithmic decisions, undermines precisely these foundations, questioning man as the central subject of ethics and strategy.

The work immanently shows that artificial intelligence, although capable of precise data analysis and operational decision-making, remains ethically limited, devoid of instinct, empathy and the ability to make moral judgments. Without human intervention, war risks becoming a process without accountability, in which the distinction between ends and means is lost.

The modern theory of just war, as well as international legal frameworks, must adapt to new challenges. It is necessary to develop a hybrid ethical-legal framework that combines universal moral norms with technological reality, ensuring that military operations remain in the domain of man, not machine. The role of ethics in the era of algorithmic dominance becomes more important than ever, not as an abstract concept, but as a necessary condition for preserving man at the center of decision-making. Ultimately, the fact is that war in the age of artificial intelligence is not only a technological challenge, but also a challenge of humanity. If we as a society do not respond to this challenge with new ethical, philosophical and normative paradigms, we risk not only changing war, but also dehumanizing humanity itself. Therefore, it is crucial that technological progress is accompanied by moral maturity and philosophical insight, so that instead of post-human chaos, we step into an ethically sustainable future.

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# COACHING MODELS AND TECHNIQUES IN EDUCATION

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**Abstract:** The Strategic Framework for the Development of Education, Training and Learning in the Republic of Bulgaria (2021-2030) sets new requirements for pedagogical specialists. The realization of person-centered learning depends on the competence of education specialists. One of them is changing the role of the teacher from a source of information to a partner and mentor. The main goal of teaching is to make learning more attractive and practically oriented and to build attitudes for lifelong learning by applying new methods and approaches. In this regard, one of the possibilities to achieve this goal is applying coaching attitudes, models and techniques in the learning process. Some of the main coaching models applied in education are John Whitmore's "GROW" model and Marilyn Atkinson's model. The main coaching techniques used in education are: the coaching wheel, the time line, the scaling technique and the results framework.

Coaching models can be applied in individual sessions with a student as well as in the classroom.

A teacher in a coaching position believes that everything is okay with each child, they have the resources to cope, they are making the best choices they are capable of at the time, change is inevitable.

Coaching in education is an opportunity to improve the learning process. It is also an opportunity to prepare teachers for the challenges of the future.

**Keywords:** *teacher's coaching attitudes, coaching models, coaching techniques.*

**Field:** Humanities

## 1. INTRODUCTION

The Strategic Framework for the Development of Education, Training and Learning in the Republic of Bulgaria (2021-2030) sets out the requirements for education professionals to meet the needs of students.

-To change the way knowledge and skills are taught and learned in the formation of values and attitudes;

-To make the transition from teaching, memorizing and reproducing information to the use of interactive methods, active interaction between the participants in the educational process, personalization of the learning content and orientation towards results;

- To be creative, innovative and inspiring;

- Motivate young people to seek new knowledge and form research and creative interests;

- To provoke in the students a desire for perseverance and professionalism, development and mutual assistance;

- To discover the talents and gifts of every child;

- To change the environment, subject areas and teaching methods at a pace that matches or outpaces the dynamics of the changing world; (Strategic Framework for the Development of Education, Training and Learning in the Republic of Bulgaria, 2021)

One of the possibilities to achieve these requirements is the application of coaching models and techniques in education.

## 2. PRESENTATION

The goal of coaching in education is to inspire and trigger the student's potential to be active in the realization of the desired goals, in the development of his personal potential to find solutions to the tasks and achieve success. Coaching is a frank, friendly, equal dialogue aimed at achieving awareness and results. A teacher in a coaching position has the following mindset:

- All is well with all children. According to this principle, all children are good as they are. The ability to acknowledge the fact that all is well with everyone allows one to transcend one's own judgments and stereotypes. It allows one to see in students their unlimited potential and possibilities.

- Students have all the resources to achieve what they want. According to this principle, the child wants what he can achieve. Each student has the potential to achieve his or her goals. What holds them back is that not everyone is able and willing to look within.

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- Students always make the best choice possible for them at the time. According to this principle, each student makes the best choice he or she is capable of based on his or her abilities. The only way to truly support students is by treating them as the whole persons that they are.

- We can find positive intent in every behavior. Students' actions and behaviors are unconsciously planned to fulfill positive intentions. Believing in positive intention leads to a new level of understanding.

- Change is inevitable. According to this principle, transformation is inevitable in response to all current internal and external changes (Zotov, 2020).

The following coaching models and techniques are applied in education:

### ***“Scaling” technique***

It is primarily used to assess change. On a scale of 1 to 10, the current status is noted, then at the end of the lesson, term, project, exam preparation, the status achieved is noted. The technique can be used to measure motivation, satisfaction, outcome effectiveness, commitment, to measure one's own state of anxiety, insecurity, etc. As for each item, criteria can be developed on the scale (Atkinson & Choice, 2013).

Examples of the application of the technique are presented below:

- On a scale of 1 to 10, how motivated are you to solve the case, with 1 being “not motivated” and 10 being “very motivated”?

- On a scale of 1 to 10, how satisfied are you with the lesson?

- How enthusiastic are you from 1 to 10 to solve the problem?

- On a scale of 1 to 10, rate how important the quality/skill/knowledge is, with 10 being “very important” and 1 being “not important”.

- Rate your expectations on a scale of 1 to 10, with 1 being “I didn't get what I wanted” and 10 being “I got what I wanted”.

- On a scale of 1 to 10, how prepared are you for today's lesson?

- What else do you need to do to get one step up the scale? And, to get to 10?

- What do you expect from the lesson so that you can rate your satisfaction with it out of 10?

### ***The coaching wheel***

The “coaching wheel” is a classic coaching technique that is a circle divided into eight sectors, appropriately named, and containing a rating scale from 1 to 10 for each sector. In training, the Coaching Wheel is used to assess knowledge on a particular topic, subjects, goal setting, opportunity assessment, skill assessment, talent assessment, and more. It is an opportunity to get the attention of students to do self-assessment. The sectors of the wheel can be colored differently. A scale of 1 to 10 is used to grade each sector, with 1 being the lowest grade and 10 being the highest grade (Antonova, 2020).

Each sector is then analyzed for what it means to the student and what the desired state is. After analyzing the domains, the teacher invites the students to decide what can be done so as to achieve what is desired. Ways to implement other sectors of the wheel are also discussed. As a result, an action plan is drawn up which the student begins to implement. The school age at which the technique can be applied is unrestricted. Below are examples of the application of the technique. In the sections of the wheel, write down the subjects you are studying. Do a self-assessment or (how satisfied are you with your knowledge, skills in...) on a scale of 1 to 10 with 1 being “not doing well” and 10 being “doing well”.

### ***The “Results Framework” technique***

The Results Framework is a technique for keeping students focused on their own key priorities, to discover and follow their true purpose.

The results framework asks a sequence of questions according to the passage between the phases in the framework.

In the inspiration (goal setting) stage, questions are asked:

What would you like? Why is this important to you?

In the implementation phase (developing an action plan) questions are asked:

How can you achieve this?

What particular actions can you take now?

In the stage of integration, increasing value, questions are asked, such as:

How can you achieve this?

What particular actions can you take now?

In the stage of completion questions are asked, such as:

How can you know you have achieved your goal?

If you already had it, what would be different?

### ***Timeline or “Reverse planning” technique***

The essence of this technique is that planning starts from the end goal to the beginning.

In learning, the technique means defining the goal through the outcome framework; defining the time frame for realizing the goal; moving into the future when the goal is realized and the positive consequences of doing so are visible; describing the desired future (images, sounds); followed by looking back at the path traveled. Students should then make a to-do list in reverse order of what needs to be done to complete the task in a timely manner. This could be a project, homework, exam preparation, and more.

The following questions are used:

- "What are the most important milestones you notice?", "When did this happen?", "How long does each task take?", "How are the tasks related to each other?";
- "If you could give advice from the future of yourself to the present - what would you say?"
- "What were the first, easiest steps needed to achieve a result?"(Pashko, 2020)

### 3. COACHING MODELS

Some of the most used coaching models in education are John Whitmore's GROW model and Marilyn Atkinson's model.

The GROW model is a framework for conducting a coaching session. It was developed by John Whitmore and his colleagues at Performance Consultants International. The name comes from the English "GROW" - "growth" or "growth model". The model consists of a series of questions that are grouped into four strands as one progresses through each one in turn: G = goal, R = reality, O = opportunity and W = will. The model begins with the identification of the short- and long-term goal, as well-set goals are a motivator to achieve them. The coach asks questions that stimulate thinking and provoke the client's potential. The reality stage in GROW allows people to explore the current situation. In the options stage, possibilities are generated in order to achieve the goal. After reviewing the options, the client's will is used to create an action plan. In the will stage, answers are sought to questions of what will be done, when, and by whom (Whitmore, 2012; Fontejn, 2024).

#### **Questions about the target:**

- What do you want to achieve?
- What is the main goal?
- What is your goal in this discussion?

#### **Reality Stage Questions:**

- What is happening now?
- How do you assess your potential now?
- On a scale of 1 to 10, if 10 is ideal, where are you now?
- At what stage would you like to be?
- What are you doing that is preventing you from achieving your goal?
- Who else is affected?
- What do you need to achieve the desired result?

#### **Questions about the possibilities:**

- What can you do?
- What ideas do you have?
- What alternatives do you have?
- What else?
- If there is something else, what would it be?

#### **Questions about the will:**

- What will you do?
- How will you do it?
- When will you do it?
- Who will you talk to?
- To what extent will it serve your purpose?
- How will you measure success?
- What is the first step?
- When exactly will you start? (Whitmore, 2017)

This technology forms the ability to set tasks commensurate with one's own potential and capabilities.

Another model applied in education in Russia is the Marilyn Atkinson model. The model includes the following stages: establishing a relationship; contact (making a contract); planning questions; using experience; planning activities; conclusion, recognition of achievements (Atkinson, 2012).

In implementing this model, the first thing the teacher does is to create a relationship of trust, safety and support. At the contact stage, a dialogue takes place between the teacher and the students. The dialogue clarifies the reasons why one or another topic is being studied, what its role is for the field of knowledge and profession that the students are mastering in general, and the relationship to the student's personal context. This is also the motivation for applying the knowledge students have acquired, exploring the topic in depth. The next stage is creating experiences, with techniques such as the coaching wheel, scaling, etc. At this stage, students work in teams or individually to put into practice the topic studied. In order for the whole process, both in the classroom and afterwards, to be perceived as useful and important, the teacher ends the session with questions about what the learners have gained and what they want to thank each other for (Fabra & Mircalo, 2020).

Models in coaching are used depending on the needs of the students and the preference of the teacher in the coaching position. Coaching models can be applied in individual sessions with a student as well as in the classroom.

#### 4. CONCLUSION

Coaching in education is an opportunity to improve the learning process.

It is also an opportunity to prepare students for the challenges of the future.

The coaching models and techniques discussed are an opportunity to develop skills for goal setting, planning, self-assessment, measuring motivation, reducing anxiety, etc.

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# DEFINING PUBLIC INTEREST: CRITERIA FOR LEGAL IMPLEMENTATION

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**Abstract:** The concept of public interest remains one of the most contested, ambiguous, yet fundamental categories in legal theory and practice. This paper examines the significance of public interest through theoretical perspectives, general constitutional principles, and concrete legislative solutions within the legal system of the Republic of Serbia. The paper further explores how public interest functions as a legal standard whose content must often be determined on a case-by-case basis. Legal scholarship defines related concepts—such as common good, general interest, state interest, national interest, and public interest—in varying ways. Theoretical sections highlight the tension between value-based and procedural conceptions of public interest, as well as the challenges in anchoring a contested concept within normative legal structures. Authors propose a solution for the normative conceptualization of public interest through a dual approach tailored to each legal branch separately: 1. Adopting context-specific criteria for defining public interest in each field of law, while 2. Preserving constitutional-level flexibility. This approach aims to reconcile the necessary generality of fundamental legal concepts with the precision required for effective legal implementation. The analysis further reveals how unexamined confluences of “public interest” with “state interest” or “common good” generate legal uncertainty. By anchoring the dual-path proposal in both constitutional theory and practical adjudication needs, the paper offers a replicable model for balancing societal values with juridical clarity. The analysis ultimately underscores the need for a dynamic and interpretative framework that allows public interest to be both normatively grounded and adaptable to changing social and legal contexts.

**Keywords:** *Public Interest, Common Good, General Interest, State Interest, National Interest.*

**Field:** Social Sciences

## 1. INTRODUCTION

Public interest is a term that has multiple meanings. “It manifests in three ways: as a rhetorical instrument, as a description of current policy, and as a legal standard”(Geoffrey, 2008, p. 1). These manifestations must be distinguished. Rhetoric and the prevailing political course provide an insufficient and ambiguous framework for defining public interest. This paper will analyze exclusively the legal aspect of public interest. We take the position that it is crucial to define public interest in the legal acts of the Republic of Serbia with both precision and sufficient breadth. The consequences of failing to define this concept are far-reaching, including the inability to distinguish external whistleblowing from other rights protection procedures, the inability to determine conflicts of interest, the lack of clear jurisdiction for the public prosecutor’s office and the Ombudsman, among other issues.

Therefore, it is not sufficient to rely solely on rational interpretation when applying legal provisions; instead, it is necessary to establish general criteria for determining public interest within a specific branch of law. “The realization of the legal order through standards or general clauses results in what is referred to as ‘judge-made law’—*droit fait par le juge*, *Gerichtsrecht* (or *Richterrecht*).”(Marković, 1968, p. 11). Thus, what is the lesser evil: failing to define public interest or defining it within a specific legal branch or area regulated by law through clear criteria for its practical application? We advocate for the latter position.

## 2. MATERIALS AND METHODS

This study employs a doctrinal legal methodology grounded in the public law to systematically analyze the conceptualization, application, and legislative treatment of “public interest” within Serbian jurisprudence. The research design integrates analysis of primary legal sources with critical evaluation of scholarly discourse to identify systemic gaps and operational challenges arising from undefined or ambiguous public interest criteria.

Therefore, this paper will analyze certain theoretical aspects of this issue, as well as the following legal provisions in Serbia: the Constitution (2006), the Law on Public Prosecution (2023) the Law on Defense (2007), the Law on Civil Servants (2005), the Law on Public Information and Media (2023), and the National Security Strategy (2019).

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### 3. RESULTS

The analysis revealed critical inconsistencies in Serbia's legal treatment of public interest. First, the Constitution's interchangeable use of "public interest," "general interest," and "state interest" created systemic ambiguity. For instance, Article 155 (public prosecutor's mandate) and Article 87 (state property) employed distinct terms without differentiation, conflating institutional mandates with property rights. Second, 78% of analyzed laws referencing public interest (5/7) lacked operational criteria for its determination, relying instead on circular definitions (e.g., the Law on Civil Servants defining conflicts of interest through undefined "public interest" itself).

Notably, the Law on Public Information and Media emerged as an exception, reducing ambiguity by enumerating 15 context-specific criteria (Article 15). Conversely, the National Security Strategy (2019) demonstrated that precise definitions are achievable in strategic documents but highlighted a legislative gap: its criteria for "national interest" (e.g., territorial integrity, EU integration) were broader than constitutional provisions, creating hierarchical uncertainty.

Theoretical contradictions further complicated practical application. While Prica's relational model (2022) framed public interest as a mediator between private and collective claims, Serbian jurisprudence inconsistently applied this framework. For example, prosecutors' ethical codes emphasized individual rights protection as intrinsic to public interest, whereas the Law on Defense prioritized collective security without reconciling these approaches. Comparative analysis with EU whistleblower directives revealed that Serbia's Law on Whistleblower Protection (2014) diverged by omitting public interest thresholds, rendering it vulnerable to instrumentalization.

These findings underscore a systemic pattern: Serbia's legal framework delegates public interest determination to subordinate actors (courts, prosecutors, ethics committees) without providing normative guardrails, exacerbating legal uncertainty in rights-restriction cases.

### 4. DISCUSSION

#### 4.1. THEORETICAL PERSPECTIVE

It is impossible to define a priori a general term of public interest. "Mathematicians have developed the concept of an asymptote—a line that approaches a certain axis but never reaches it at a finite distance. This serves as an analogy for the possibility of establishing objective criteria in defining public interest." (Geoffrey, 2008, p. 246). Reach of the asymptote (all potential individual cases) and the axis (just law) occurs when the criteria for applying general institutions allow it. "Public interest is not a fixed category. It cannot be the same at all times and in all societies... The normative requirement is expressed in laws. However, legal formulations have two shortcomings: they quickly become outdated and tend to constantly expand the inventory of what media and journalists should or should not do in the name of public interest." (Radojković, 2015, p. 7 – 16).

According to Prica (Prica, 2022, p. 521 – 537), general interests reflect what is beneficial for society as a whole and change according to its needs, private interests represent the legal rights of legal subjects within the legal order, while public interest is a relational concept—one whose content is determined only in relation to general, special, and private interests. Each of these interests presupposes the existence of a subject (the holder of the interest), and thus Prica takes the "objective spirit" as the criterion of subjectivity, i.e., moral subjects, and includes among them: natural persons, legal entities, other subjects of the legal order (state bodies, holders of public authority, etc.), but also moral subjects who are bearers of the "objective spirit" (nation, family, civil society, etc.), calling this collective a territorial community. He further states: "In a rule-of-law order, public interest is anchored between general, special, and private interests; between the public and private spheres; between publicity and privacy; between the interventionism of public authorities and civil society; between the institutional order of public authority and the institutional order of the territorial community—as a relational (regulative) determinant of various legal rights and interests." (Prica, 2022, p. 523). Consequently, public interest acquires its content through the regulation of pluralism of interests, which fundamentally implies a conflict among subjects of the territorial community. He concludes that the legal regime is essentially a reflection of public interest because it determines the relationship between legal rights and interests in specific areas of law.

As Tomić similarly argues: "Public interest and public order are inextricably linked. The very concept of public order cannot be properly conceptualized without public interest serving as its foundation. Conversely, public order essentially represents an embodiment of society's most crucial public interests - those deemed vital enough to warrant absolute protection against any form of infringement. In this fundamental sense, public order constitutes the protected sphere of non-negotiable public interests that

must be safeguarded unconditionally.“ (Tomić, 2019, p. 35).

Some authors (Radovanović, Prodanović, 2023, p. 347) equate the meaning of the common good and public interest. In current academic discussions, scholars frequently treat the concepts of “common good” and “public interest” as synonymous terms. Other authors conceptualize public interest exclusively in relation to private interest, deliberately avoiding the use of terms such as general, special, or common interest (Jerinić, 2020, p. 506).

Some legal theorists take a more radical stance, denying the very existence of public interest as an objective category. In their view, it constitutes not an autonomous social phenomenon, but rather an outcome of specific constitutional arrangements and prevailing political culture. (Posavec, 2003, pp. 21 – 31).

Certain authors equate public interest with the general interest. The interest that a social community holds in utilizing public goods is legally recognized and protected as public interest. Moreover, public interest constitutes the fundamental rationale for designating certain goods as public and their use as universally accessible (Popovski, 2017, pp. 275 – 302).

Nevertheless, “from the standpoint of the values characterizing a rule-of-law state, it is important to emphasize that only the constitution and laws can establish the freedoms, rights, and duties of legal subjects, and that the achieved level of human and minority rights cannot [...] be diminished.”(Vasić, 2018, p. 20). This principle is not merely a formal obligation—it represents a protective mechanism against arbitrary use of power. When, for example, legal provisions rely on vague or even tacit concepts such as “public, general, or special interest” without precise criteria for their application, a fundamental problem arises: the state retains the right to restrict citizens’ rights in the name of something that is not legally defined. Thus, the Law on Civil Servants in Article 25. Paragraph 1. defines a conflict of interest as: “a situation in which a civil servant has a private interest that affects, may affect, or appears to affect their conduct in performing the duties of their position in a manner that jeopardizes the public interest.” The criteria for determining public interest, through which this concept could be more precisely defined, are not established by this law. This legal gap opens the door to interpretations that may undermine the fundamental purpose of the law—to protect the common good without endangering individual rights. “Values without criteria (in their application) are hell,” as Vladimir Pištalo says (Pištalo, 2010). While general legal terms without criteria in practice are the same as lawlessness.

We maintain that it is impossible to define a priori a general concept of public interest. “Laws may differ in their sources (and pertain to the ‘will’ of those in power), and thus differ in content, objectives, or the values they realize or secure.” (Vasić, 2018, p. 21). For this reason, it is necessary to define the goals that each law in a given field seeks to achieve. That goal is public interest. “And since the law expresses the ‘will’ of the community regarding its most important interests, goals, and activities, the lawmaking process must be public, complex, detailed, and sufficiently lengthy.” (Vasić, 2018, p. 22).

Although a law, as a legal act, by definition strives for generality, its application requires a balance between formal equality (all subjects in similar situations being treated the same) and individual fairness (adapting to the specific circumstances of a case. “The principled inapplicability of a general legal rule to all peculiar individual cases is resolved in the process of legal interpretation based on the authority and obligations of those who apply the law, primarily the courts, as to how to proceed in a specific situation—more precisely, how to adapt an indeterminate legal norm, which is for them a source of law and the basis for decision-making, to an individual case and make it just for that case. Although generality, due to its inherent indeterminacy, represents a flaw of the law, it is primarily its virtue, because by formalizing the principle of justice, the law enables the principled equality of legal subjects in similar situations, as well as individualization in each particular case regarding how they differ.” (Vasić, 2018. p. 23).

The generality of the law is necessary, but without minimal guidelines for its application, it leaves room for legal uncertainty and selective justice. Therefore, we advocate not for defining public interest within every law regulating a specific area (e.g., higher education law, public procurement law, etc.), but for defining valid criteria on which the interpreter in all individual cases will have a precise framework for legal interpretation.

## 4.2.LEGAL FRAMEWORK

### 4.2.1 CONSTITUTION OF THE REPUBLIC OF SERBIA

The Constitution itself employs multiple distinct concepts:

1. National security interest (Article 32. Paragraph 3. – exclusion of public trials); 2. State interest, i.e., the interest of the Republic of Serbia (Preamble; Article 97. Paragraph 1. Item 17. – jurisdiction of the Republic; Article 138. Paragraph 1. – Ombudsman); 3. Public interest (Article 58. – right to property); 4. Public interest as determined by law (Article 155. Paragraph 1. – Status of Public Prosecutor’s Offices);

5. General interest (Article 85. – property rights of foreigners; Article 87. – state property; Article 97. Paragraph 1. Item 8. – jurisdiction of the Republic of Serbia); 5a. General interest established upon enactment of law (Article 197. Paragraph 2. – prohibition of retroactive effect of laws and other general acts).

Additionally, the Constitution prohibits conflicts of interest but refers to their determination by the Constitution and law. This prohibition is formulated in a way that avoids the terms public or general interest, stating instead: “No one may hold a state or public function that conflicts with their other functions, activities, or private interests.” This provision indirectly provides a negative definition of public interest: anything that conflicts with private interest (of persons performing public functions) constitutes public interest. However, this stance is unacceptable, as it is overly broad and unclear.

The Ombudsman Law repeats the constitutional provision from Article 138. and thus in Article 1. paragraph 1. establishes the competence of the Protector of Citizens in the procedure of controlling the body responsible for the legal protection of property rights and interests of the Republic of Serbia, as well as other bodies and organizations, enterprises and institutions entrusted with public authority. Also, Article 138. of the Constitution prescribes that the Protector of Citizens supervises, among other things, the work of public prosecutor’s offices, so it can be indirectly concluded that the Protector of Citizens can protect the public interest. However, the Law on the Protector of Citizens itself does not use the concept of public interest nor does it define it more closely.

The most significant provision regulating public interest is Article 155. Paragraph 1. which stipulates that the Public Prosecutor’s Office is a unique and independent state body that prosecutes perpetrators of criminal and other punishable offenses and performs other functions aimed at protecting the public interest as determined by law. This is the only provision indicating that public interest will be further specified by law.

The Constitution does not clarify the differences between terms used in various articles, such as national security interest, state interest, public interest, and general interest. Such ambiguity may lead to legal uncertainty in the application of norms and facilitate arbitrary interpretation by implementing authorities. This uncertainty is particularly problematic when precise determination is needed regarding which actions serve public interest and which do not. Additionally, conflicts may arise between these interests, such as between state and general interests.

This also calls into question the accountability of state authorities when determining the extent to which certain actions, activities, or legal acts affect public or general interest.

### 4.3. LEGISLATION

In this section, we will analyze laws directly based on the aforementioned constitutional provisions. We begin with the most significant, Article 155. of the Constitution, which establishes that the Public Prosecutor’s Office is a unique and independent state body prosecuting criminal offenses and protecting the public interest as determined by law.

#### 4.3.1. Law on Public Prosecution

Article 2. Paragraph 1. of the Law on Public Prosecution repeats the constitutional provision verbatim. The subsequent paragraph of the same article specifies the legal sources guiding prosecutorial work: 1. The Constitution, 2. Ratified international treaties, 3. Laws, 4. Generally accepted rules of international law, and 5. Other general acts adopted in accordance with the law.

Furthermore, Article 51. Paragraph 1. states: “The public prosecution function shall be exercised in the public interest to ensure the application of the Constitution and laws, while respecting and protecting human rights and fundamental freedoms.” This implies that applying the Constitution and laws while safeguarding rights and freedoms constitutes public interest. However, it provides no additional criteria for defining the public interest, merely reiterating the rule-of-law principle.

Article 71. regulates the incompatibility of prosecutorial functions with other roles or private interests. Paragraph 2. specifies that any function, activity, or private interest undermining the dignity or independence of the prosecution is prohibited. This indirectly suggests that compromising prosecutorial integrity violates public interest, but the provision offers no substantive criteria beyond this. Paragraph 3 delegates to an Ethics Committee the authority to determine conflicts of interest based on the Prosecutors’ Ethical Code (2024). The Code (Article 4.) mandates prosecutors to act in the public interest while considering individual rights, yet fails to provide concrete guidelines for defining public interest in practice.

Similarly, the section of the Law on Public Prosecution regulating the incompatibility of prosecutorial functions with other positions, employment, or private interests fails to provide any guidelines that could assist in determining the meaning of public interest in practical application. Even the few additional references to acting in the public interest pertain solely to prosecutors’ accountability for professional

omissions. Consequently, the law overlooks all public interest actions that were not undertaken. Thus, neither the Law on Public Prosecution nor the Ethical Code for Public Prosecutors contains any substantive criteria to aid in defining public interest.

#### 4.3.2. National security interest, state interest, and the interest of the Republic of Serbia

“The terms “national interest” and “national security” emerged in the United States during the late 1930s and early 1940s under President Franklin Delano Roosevelt’s administration. In dictionaries of Western countries, primarily in the United States where this concept of national interest originated, the adjective ‘national’ refers to all citizens, members of the political community, and represents a kind of terminus technicus for a broader societal interest - in no case is it ethnically defined. This understanding of national interest naturally encompasses both state interest and the interests of all members of such a community, both individually and collectively.”(Simić, 2024, pp. 384 – 385)

Article 32. of the Constitution of the Republic of Serbia uses the concept of national security interest in excluding public access to trials in criminal proceedings. Article 304. of the Criminal Procedure Code (2011) only mentions the protection of national security interests regarding keeping as secret facts or data that could threaten the national security interest. Also, Article 363. paragraph 1. item 1. repeats the constitutional provision on the possibility of excluding the public to protect national security interests.

The regulation that defines the national security interest is the National Security Strategy of the Republic of Serbia (2019) (hereinafter: the Strategy), which was adopted based on the Defense Law, which in Article 4. paragraph 1. item 14. prescribes that: “The National Security Strategy of the Republic of Serbia is the highest strategic document whose implementation protects the national interests of the Republic of Serbia from challenges, risks and security threats in various areas of social life.”

The Strategy itself provides criteria for clearer determination of national security. Thus, in Part 3. the Strategy defines the fundamental interests of the Republic of Serbia as: preservation of sovereignty, independence and territorial integrity; preservation of internal stability and security; etc. And in the further text, each mentioned interest is described in more detail and criteria are given based on which it is possible in practice to determine what is and what is not in the interest of the Republic of Serbia.

The analyzed Strategy represents a good example of defining criteria for determining the concept of national interests as well as national security. However, it deepens the problem of the relationship and distinction between public interest and national interest. Which of these is broader or more dominant remains unclear and a matter of free interpretation and speculation.

#### 4.3.3. Law on Public Information and Media

The Law on Public Information and Media addresses the problem of defining public interest in a manner aligned with our proposed approach in this paper. More precisely, it does not fully resolve it but narrows its scope, and we maintain that general legal acts should not (may not and cannot) do more than this, as we have explained in the theoretical part of this work. Specifically, Article 15. of this law enumerates what constitutes public interest in the field of public information, while Articles 16. and 17. prescribe how this public interest is to be realized. Article 15. provides 15 specific criteria to more clearly assess public interest in information matters. In this way, the law serves as an exceptional example of how legislative acts can contribute to more precise definition and limitation of concepts crucial for societal functioning. It does not offer an absolute definition of public interest but provides concrete guidelines for its understanding and application in public information.

Beyond the obligation for truthful and impartial public reporting, the law also regulates key aspects concerning local and regional interests, as well as the necessity of supporting media content production that safeguards human and minority rights, democracy, and social justice development. This approach is highly significant because it provides legal certainty and direction both for media entities and state authorities responsible for enforcement. Additionally, pressing issues such as discrimination, lack of information accessibility for vulnerable groups, and media illiteracy are addressed through specific measures in this law, promoting inclusivity and equality.

Another vital aspect of this law is its support for media content that enhances cultural and national identity, as well as fostering dialogue and mutual respect among diverse cultures and ethnic communities.

Furthermore, Articles 16. and 17. outline measures for realizing public interest in the information sphere. A key positive feature of these provisions is the clear and precise definition of how the Republic of Serbia fulfills public interest in public information—through the establishment of public service media at various levels and support for national minority councils in their efforts to found media outlets and foundations.

Moreover, Article 16. encourages the creation of a political, economic, and social environment that ensures media freedom without undue pressure. This is a critical element in safeguarding media independence, which must operate within the framework of free and unbiased journalism.

## 5. CONCLUSION

In the legal system of the Republic of Serbia, the concept of public interest is not clearly defined. A positive example of defining public interest is the Law on Public Information and Media, which addresses two key issues: 1. What constitutes public interest in the sphere of information 2. How it is realized. We propose adopting this normative methodology—establishing clear criteria for defining public interest—in all laws regulating specific societal areas.

Furthermore, we recommend harmonizing the terminology used in the Constitution and laws of the Republic of Serbia, with better differentiation between terms. Specifically, it is necessary to define: What constitutes general interest, What qualifies as national interest, What falls under state interest, and What defines public interest, along with clarifying their interrelations.

This would mitigate legal uncertainty arising from inconsistent terminology and meanings. While such ambiguity cannot be entirely eliminated—nor should complete elimination be the goal of general legal acts or their drafters—a more structured approach would significantly enhance legal clarity and predictability.

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# PERSPECTIVES OF ANALYSIS OF THE STATE OF THE COMPANY THROUGH HORIZONTAL AND VERTICAL ANALYSIS FOR THE PURPOSE OF FUTURE PREDICTIONS

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**Abstract:** To stay “in touch” with their strengths and weaknesses, business systems should frequently update their procedures for analysis and comparison, as well as create new goals and activities. This will help them to take advantage of opportunities, minimize risks and make informed decisions in future forecasts. Every company is affected by different elements that affect financial policy research and have an impact on business results. Therefore, caution is needed when building financial policy tools and making financial decisions. However, while being overly cautious could reduce corporate effectiveness by preventing risk, being reckless can threaten not only a company's survival but also its effectiveness. With the help of comprehensive and accurate financial reports and their in-depth analysis, managers, staff, owners, investors and other stakeholders can learn how the business is doing, predict future performance and make necessary adjustments. Financial analysis of business is necessary for the proper management of the company's financial policy because it serves as a basis for decision-making. Analysts conduct various analyzes of financial statements to assess a company's financial status and future growth prospects. Among other things, we will try to determine the viewpoints of assessing the current status of the company in order to predict its future through vertical and horizontal analysis.

**Keywords:** *financial analysis, horizontal analysis, vertical analysis, future of the company.*

**Field:** Social sciences

## 1. INTRODUCTION

The primary goal of a business is undoubtedly to make money while simultaneously achieving other core goals. A company that is an active economic entity either grows or collapses due to the relationship with the elements that affect its position on the market. Therefore, it should effectively respond to favorable challenges or threats by growing and adjusting its internal strength, because if this adjustment is not made, other successful companies will use that situation to their advantage. A company should manage its relationship with the environment by choosing growth and development paths, strategies and rates that will allow it to maintain its vitality over time. The financial condition of a company is affected by its debt, solvency, ability to maintain the true value of its own capital and ability to reproduce. In order to fully assess it and make projections for the future, it is necessary to distinguish between good, acceptable and unfavorable financial positions. A company is considered to be in a good financial position if its debt provides relative security and independence for its creditors, if it is solvent, if it moderately raises its own capital during periods of stable currency, if it maintains the real value of its own capital during inflation and if it is able to finance simple reproduction from its own funds. Maintaining liquidity through financial balance, but without security, is a prerequisite for an acceptable financial situation. Since financial statements, as summary statements, show how the entity — the company — has used the money entrusted to it by its owners or creditors and what its current state is, accounting principles and IAS/IFRS must be followed to properly assess the status of the company. The preparation of financial statements alone is not enough, however, because for businesses in all industries, evaluating and understanding financial statements can be critical to predicting the future. This is because any business should prioritize continuity and quality, which in turn leads to a successful business and greater growth prospects. With the help of comprehensive and accurate financial reports and their in-depth analysis, managers, staff, owners, investors and other stakeholders can learn how the business is doing, predict future performance and make necessary adjustments. Considering all that has been said, it is evident that a thorough analysis of the current state of the business system and its ideal future location on the

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market is much needed. With regard to the subject of financial analysis, the widely accepted opinion in the literature is that the examination and assessment of the financial situation and the measure of profitability of invested capital, as well as the provision of purposeful information about it to certain users, are the general goals of financial analysis. In horizontal analysis, also known as trend analysis or time series analysis, financial trends are observed over time periods - a particular quarter or year. It is conducted before vertical analysis, and is usually most useful for companies that have been in business for a longer period of time. The most important element revealed through this comparative financial analysis is the trend of individual items in the financial statements. Analyzing financial trends over a period or years can help track changes in a company's financial condition, find patterns in its data and spot potential problems and opportunities, then create recommendations for a company to consider in order to maximize its financial success. When we analyze the profit and loss account with vertical analysis, we look at whether there has been an increase (decrease) in net profit, profit before tax, business profit, business profit in business income, which actually represent 100% of the size in relation to which the analysis is done. This type of analysis can also be used for various projections, because established trends can be used to predict future achievements and development of the company's financial position (Knežević et al., 2019, p. 46). Accordingly, different views of the authors were used on the analysis of financial statements and for the creation of horizontal and vertical analysis of the specific company for which we took the data from APR (Ashar, H. 2019, Bragg, S. M. 2020, López, V., & Martinez, J. 2020, Simmons, D., & Sykes, K. 2021 and others listed in the literature at the end of this paper).

## 2. FINANCIAL ANALYSIS

To give an accurate picture of a company's financial situation, success and liquidity, financial statement analysis quantifies and explores the connections and relationships between the balance sheet, income statement and cash flow statement. A financial analyst has access to specific tools or methods of analysis to perform this duty. When analyzing financial reports, the following tools are used: examination of basic financial parameters; analysis using leverage analysis and net working capital, but vertical analysis, horizontal analysis which will be the subject of this work.

Horizontal and vertical analysis vary primarily in that the former shows the percentage change of each item from quarter to quarter (QQ) or year to year (YoY) using percentages. The vertical analysis method considers the item's percentage of the overall amount, whereas the horizontal analysis formula considers the item's percentage change from one period to the next. Here, we compare and contrast each of the vertical and horizontal analysis formulas:

Vertical analysis formula = (statement item / total base figure) X 100

• Horizontal analysis formula =  $\frac{\text{comparison year amount} - \text{base year amount}}{\text{base year amount}} \times 100$

However, it's important to keep in mind that line item percentages from one quarter or year to the next can still be compared using vertical analysis. The main distinction is that percentages from vertical analysis do not match percentage changes.

### 2.1. HORIZONTAL ANALYSIS

Each company must present comparative financial statements in accordance with generally accepted accounting principles, from which information for the current and prior years is gathered. In order to see changes in individual categories that have occurred during the analyzed period, horizontal analysis—also referred to as comparative analysis because it compares consecutive balance sheets, income statements, and cash flow statements for two or more years—is the first step in studying such statements. Financial statement items' changes from the prior year (or alternative) are reported in absolute quantities and in a particular currency, in our instance euros (€) and percentages (%).

#### 2.1.1. Using horizontal analysis for forecasting

When we have access to a company's financial statements for two consecutive years, we can analyze how each item has evolved over time. This historical comparison allows us to identify trends and use them as a basis for projecting future performance. In other words, by reviewing past data, we can determine the quarterly or annual growth rates for various items on the income statement and balance sheet, which helps in forecasting their future behavior. For example, we can estimate future sales by analyzing how sales have grown in previous periods.

Horizontal analysis is essentially a method of comparing financial data across different time periods—usually between the current and previous year. The first step in this analysis involves calculating the change for each item, both in absolute terms and as a percentage, using a standard formula.

Difference (in absolute amount) = Current year – Previous year  
Then to express those differences in % through the following formula:  
(difference / previous year) x 100

**Table 1. Example of horizontal analysis based on comparative balance sheet in € and %**

Ordinal number	Position name	2024	2023	2024/2023	2024/2023
		Amount in €	Amount in €	Amount %	Amount %
	<b>ASSETS</b>				
1.	Fixed assets	42.360	38.523	3.837	9,96
2.	Current assets	362.421	206.354	156.067	75,6
	<b>TOTAL ASSETS</b>	404.781	244.877	159.904	65,2
	<b>LIABILITY (Capital and liabilities)</b>				
1.	Share capital	274.351	196.721	77.630	39,5
2.	Short-term liabilities	86.700	24.954	61.746	247,4
3.	Long-term liabilities	43.730	23.202	11.528	49,7
	<b>TOTAL LIABILITIES</b>	404.781	244.877	159.904	65,2

Source: Authors, 2025

In Table 1, we present the results of a horizontal analysis applied to a comparative income statement, using data from 2024 (base year) and 2023 (previous year). The calculations reveal the following changes in key balance sheet items: current assets increased by 75.6%, non-current assets rose by 9.96%, short-term liabilities surged by 247.4%, long-term liabilities grew by 49.7%, and share capital increased by 39.5%.

The sharp rise in current liabilities (247.4%) raises concerns, as these obligations require prompt repayment and could negatively impact the company's liquidity. This situation suggests that the company may be deferring payments, leading to a buildup of outstanding liabilities, which is reflected in the balance sheet.

Additionally, the rise in long-term liabilities points to a lack of investment in fixed assets or delayed repayment of long-term debt. On the other hand, the increase in share capital indicates that the company attempted to raise funds by issuing new shares to its owners. Instead of allocating resources toward acquiring new property, plant, and equipment, the company seems to be focusing on receivables, inventory, and cash reserves—evident from the significant 75.6% growth in current assets. Meanwhile, the modest 9.96% rise in fixed assets suggests only a slight expansion of operations.

## 2.2. VERTICAL ANALYSIS

Vertical analysis - analysis of the common size of the balance sheet and income statement is important because in this analysis, certain balance sheet items are expressed as 100%, and then all other items are expressed as a % of that basic item. This is a structural analysis of financial statements, or rather, an examination of the relationship of multiple items to one that is treated as 100%. Most often, total assets and liabilities in the balance sheet and sales revenue in the income statement are treated as 100%. Financial statements expressed in this way are called common size. Such reports are very useful in conditions of high inflation when it is not possible to compare absolute amounts over time (Dražić-Lutilský, 2010.)

**Table 2. Data from the income statement of company “X” in percentages as of 31.12.**

BALANCE SHEET	2024	2024	2023	2023
	Amount in €	Amount in % from income	Iznos u €	Amount in % from income
Net income from sales	438.050	100	381.420	100
Purchase value of goods sold	251.350	57,38	254.360	66,69
GROSS PROFIT	186.700	42,62	127.060	33,31
Selling expenses	95.300	21,75	41.650	10,91
General expenses	32.100	73,28	17.320	4,54
NET PROFIT	59.300	13,53	68.090	17,85

Source: Authors, 2025.

Based on the available data from Table 2, we can conclude that in 2024, sales and general expenses dominated the income structure. As a measure of the declining strength of the company's returns, the percentage of net profit in total revenues fell from 17.85% to 13.53%. In 2024, the share of the purchase price of sold goods in the total income structure was reduced from 66.69% to 57.38%. This can be attributed either to the efficiency of the procurement department, which procured the goods at a cheaper price and under more favorable conditions, or to the decline in the prices of those products in the market.

**Table 3. Data from the balance sheet of company “X” in percentages as of 31.12.**

Ordinal number	Position name	2024	Amount in €
		Amount in €	
	<b>ASSETS</b>		
1.	Fixed assets(real estate, plant and equipment, intangible assets and long-term placements)	42.360	10,46
2.	Current assets(cash, accounts receivable, inventory)	362.421	89,54
	<b>TOTAL ASSETS</b>	404.781	100
	<b>LIABILITY (Capital and liabilities)</b>		
1.	Share capital	274.351	67,78
2.	Short-term liabilities	86.700	21,42
3.	Long-term liabilities	43.730	10,80
	<b>TOTAL LIABILITIES</b>	404.781	100

Source: Authors, 2025

Based on the vertical analysis of the balance sheet, we can draw additional conclusions about the structure of assets and liabilities of the balance sheet. Current assets make up 89.54% of the assets structure, while share capital makes up 67.78% of the sources of financing in the liabilities structure. This structure leads us to the conclusion that, although own capital made up a significant part of fixed assets, short-term financing also played a role, which is not a good sign. In particular, it is evident that the funding sources and the terms of the fund structure are not consistent. It is also evident that the rule of the balance sheet, which stipulates that only long-term capital is used for the financing of fixed assets, has been complied with. Working capital, on the other hand, clearly deviates from the Acid Test rule (corresponding financing 1:1), which states that liquid assets must match short-term liabilities in order to guarantee the company's liquidity. Part of the fixed assets is financed with short-term loans because there is no long-term borrowed capital in this change.

### 3. DISCUSSIONS

When we analyzed the data to identify possible issues or possibilities for the business, we saw that current obligations had grown dramatically in comparison to long-term liabilities and equity, and current assets had expanded in comparison to fixed assets. The substantial increase in current liabilities (247.4%) in this instance is undesirable since current liabilities must be paid off promptly, which could jeopardize the company's liquidity.

Furthermore, users of this financial analysis technique should exercise particular caution when drawing conclusions about the reasons behind the observed results, as a seemingly positive change is not always a reliable indicator. Instead, it is necessary to assess the potential causes of the change. This situation creates the appearance that the company is delaying its present responsibilities because it lacks the necessary finances, and that the balance sheet displays a growing amount of outstanding debt. This corporation does not settle long-term obligations or invest in fixed assets, as seen by the rise in long-term liabilities. By issuing new shares, the corporation attempted to collect money from its owners, or shareholders, as evidenced by the rise in basic capital. In order to help the business prepare for the future and create successful plans, the recommendations include the company selling inventory, reducing receivables through collection, and paying off short-term liabilities with cash. If the resulting horizontal and vertical analysis is based on the financial statements of a greater number of consecutive periods and can be compared with the most significant competitors, connected enterprises, and industrial branches, it will become more significant. This reveals the company's relative position within the industrial branch to which it belongs. Furthermore, because an apparently positive shift is not necessarily a reliable indicator, practitioners of this financial research technique should exercise extra caution when extrapolating the causes of the observed findings. Rather, the assessment of the change's possible causes is required.

### 4. CONCLUSION

Financial analysis is the process of reclassifying and summarizing data, through the establishment of indicators and trends. Financial statement analysis, as a significant part of it, refers to the detailed examination of financial statements in order to obtain additional information about the business operations of the company. The true value of financial statements is that they are used as a basic tool in predicting the financial condition of the company in the future and in determining expected earnings and dividends. The analysis of financial statements is carried out using several different methods. Here we briefly discuss the methods of horizontal analysis, vertical analysis, and trend analysis. Conducting a horizontal analysis of the income statement and balance sheet helps investors and creditors determine the current financial position of the company. By observing past results, one can estimate the growth rate, observe trends (by comparing changes from period to period), generate forecasts, or project the acquired insights into the future. Horizontal analysis can help assess a company's financial condition or position relative to its competitors. Trend analysis, which is considered a type of comparative analysis, is the process of analyzing current trends in order to predict future ones. This may involve trying to determine whether current market trends—such as gains in a particular market sector—are likely to continue, as well as whether trends in one area of the market may cause trends in another. Although trend analysis can require a large amount of data, there is no guarantee that the outcome will be accurate. Proper trend analysis does not end with calculating the decreases and increases in percentages or trend amounts over several years. Such changes usually indicate areas worthy of further analysis or research and are only clues that can lead to significant findings. Accurate predictions depend on several factors, such as political and economic conditions, promotional spending, plant expansion, management plans for new products, and expected competitive activity. Taking these factors into account, along with trend analysis, vertical analysis, and horizontal analysis, gives us a reasonable basis for predicting future performance. In addition, when evaluating business results, the technique presented can be used to assess management's success and determine whether strategy implementation is the best and most appropriate path to growth and prosperity.

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# POSSIBILITIES OF CORRELATION IN THE TEACHING OF MUSICAL CULTURE IN CLASSROOM TEACHING

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**Abstract:** The paper discusses the possibilities of correlation of teaching musical culture with other subjects in classroom teaching. The goal of the research was to determine which contents of the musical culture teaching provide the possibility of correlation with the contents of other teaching subjects. It has been established that the teaching of musical culture provides great opportunities for correlation with the majority of classroom teaching subjects. The correlation of musical culture teaching is most often realized, in several ways and through various activities, with the serbian language, the world around us/nature and society, art culture and physical education. By connecting the contents of the above-mentioned subjects in classroom teaching, tasks and planned activities are successfully implemented, the learning process is shortened, and the knowledge that students acquire is more permanent. In classroom teaching, correlation can be achieved through two or more subjects if the teacher is competent enough to recognize the possibilities of connecting content, but also motivated to integrate this model into teaching. As the most important person in the early education of students, the teacher has a great responsibility, and the successful application of this modern teaching model depends on his expertise, good planning and preparation. With well-designed and connected contents of teaching subjects, the teacher will significantly improve the teaching process, more successfully implement the tasks and planned activities, shorten the learning process for students and ensure that the knowledge they acquire is more permanent.

**Keywords:** *correlation, teaching contents, musical culture, elementary school.*

**Field:** Humanities

## 1. INTRODUCTION

The concept of correlation appears in the pedagogical literature under different terms and dates back to the distant past. Numerous philosophers, including Xenophanes, Pythagoras and Plato, studied this concept. Xenophanes studied the connection between philosophy and theology, Pythagoras studied numerical relationships in music, while Plato studied the connection between the earthly world and the spiritual (Nađ Olajoš, 2016). In modern teaching, correlation is defined as connecting related contents from different subjects, and its purpose is to make teaching more efficient and rational. The meaning of correlation in teaching is not only in emphasizing the existence of related fields, “but the pursuit of functional correlation, which implies linking the teaching contents of related teaching subjects and the uniform processing of those contents that are similar” (Stojadinović, 2017: 15). Within classroom teaching, correlation can be intra-subject or inter-subject. Intra-subject correlation refers to the connection of content within one subject, while inter-subject correlation refers to the functional connection of the contents of different teaching subjects into logical units. The mentioned types of correlation have two sublevels - horizontal and vertical correlation (Šimunović, 2006). Horizontal correlation represents the connection of teaching contents within the same grades, while vertical correlation refers to the connection of teaching contents in different grades. In addition to horizontal and vertical correlation, which refers to the interconnection and relationship between the content of the subjects studied by students at school, the correlation establishes a relationship between the orientational goals of teaching and learning strategies (Mrkalj, 2010).

After the reform of our education system and the introduction of outcomes as one of the novelties, more attention is being paid to the way in which knowledge is learned, built and connected into meaningful units. Therefore, “connecting knowledge into meaningful units and building a network of concepts needs to be realized in teaching of all school subjects” (Stakić, 2021: 16). In classroom teaching, correlation can be achieved through two or more subjects if the teacher takes into account the “goals and tasks that are provided by the curriculum for each subject, the required prior knowledge of the students, individual learning

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styles, the possibility of working in smaller or larger groups, the existence of the necessary resources for the implementation of the topic, the possibility of implementing teaching outside the classroom" (Stanišić, 2015: 71). By applying this modern teaching model, the integrity of learning is ensured, and by studying different subjects at the same time, the students are encouraged to find new solutions (Minić & Jovanović, 2020).

The teaching of musical culture, due to its nature and specific contents and activities, "in cooperation with other subjects, offers the possibility of positive integrative connection within the subject area of classroom teaching" (Ratković, 2018: 57). For this reason, numerous methodologists have dealt with the issue of integrating musical culture with other subjects in classroom teaching. Jensen (2003) suggests connecting musical culture with history, geography and social sciences (Jensen, 1978 according to Rojko, 2012), as well as Lazar (2004) which indicates different ways of integrating music into non-musical subjects. Vidulin-Orbanić (2004) states that connections between musical culture and other subjects are only possible as comparative interpretations of real connections between certain phenomena and for explanations of various folklore and historical-stylistic themes. Rojko (2005) considers that the correlation of musical culture with other teaching subjects is possible only on an explicative level and that connecting the text of a song with some non-musical phenomenon can be motivating for students, but it is not important for music. The significance of introducing music into non-musical subjects Šulentić Begić and Spoljarić (2011) see in the fact that students do not think "objective" and view the world as whole. The authors also emphasize the importance of music for the development of musical abilities, as well as for the development of cognitive abilities. According to Dobrota (2012), the value of music teaching is reflected in the possibilities it provides in achieving both inter-subject and intra-subject correlation. Šulentić Begić and Begić (2013) indicate that the correlation of the content of teaching subjects is possible if it does not harm the teaching of musical culture, but also the subjects with which it is connected. The contents and activities that are realized within the framework of integrative teaching should be realized in the same quality way as it would be in the teaching of each individual subject that is part of such teaching.

The important role of the teacher in the chain of institutionalized education should be highlighted. The teacher should systematically build knowledge and, depending on his capabilities, correlate the contents of different teaching subjects in classroom teaching (Nađ Olajoš, 2016). The successful realization of both the curriculum and the correlation of the contents of different teaching subjects depends on the expertise, motivation and inventiveness of the teacher. It is necessary for the teacher to have equal knowledge of all teaching subjects in classroom teaching in order to successfully achieve the correlation of teaching contents. By good content planning, harmonizing learning goals and outcomes, he will achieve a "creative synthesis of material with different subjects, thereby enabling students to have a more obvious, understandable teaching in which they are important factors" (Cenić & Vidosavljević, 2022: 481). In addition, it will significantly improve the teaching process, more successfully implement tasks and planned activities, but also contribute to making the knowledge that students acquire permanent.

## 2. CORRELATION OF MUSIC CULTURE TEACHING WITH OTHER CURRICULUM SUBJECTS

The goal of teaching musical culture in classroom teaching is "to develop interest and love for music in students through individual and collective musical experience, which encourages the development of creativity, aesthetic sensibility and the spirit of community, as well as a responsible attitude towards the preservation of the musical heritage and culture of one's own and other peoples" (Rulebook, 2017, 2018, 2019, 2019a). In classroom teaching, the teaching of musical culture is realized through three program areas: performing music (singing, musical games and playing), listening to music and creating music. Taking into account the specificity of the Musical culture subject, constant permeation of all areas and program contents is necessary (Kragović, 2024).

Within classroom teaching, the correlation of musical culture teaching is foreseen with the serbian language, the world around us/nature and society, art culture, physical education, but also is possible with mathematics. Correlation between the teaching of musical culture and the mentioned subjects in classroom teaching is "possible only if the essence of each subject is well known separately" (Zdravković, 2017: 330). The curriculum of the Musical culture subject is aimed at "achieving outcomes, in which priority is given to experiential learning in which students develop a personal relationship to music, and the gradual rationalization of experience over time becomes a theoretical framework" (Rulebook, 2019: 47). The material in classroom teaching is not precisely differentiated, so connecting the content is suitable as a preparation for differentiated subject teaching (Zdravković, 2017). By connecting the teaching contents of musical culture with other subjects, it is possible to "perceive certain contents from different points of view and to determine and explore the connections between the contents of different teaching subjects"

(Kostović-Vranješ & Šolić, 2011: 209).

## **2.1. CORRELATION OF THE SUBJECTS MUSICAL CULTURE AND SERBIAN LANGUAGE**

The teaching of the serbian language provides students in classroom teaching with an artistic experience of various teaching contents, so its possibilities of correlation with the teaching of musical culture are big. In classroom teaching, "literature has a cognitive and emotional function, so the processing of literary works is more comprehensible and complete if it is complemented with music" (Glišović & Petrić, 2021: 80). The contents of the subjects Musical culture and Serbian language can be connected through different musical activities - when processing songs about friendship, family, the world that surrounds the students, folk songs, songs of our famous children's poets, performing and listening to different folk and artistic compositions. Through reading and singing songs, "students get to know a small work of art, and all this leads to a successful understanding of the content of the song and has a positive effect on rhythmic and tonal education" (Stojadinović & Zdravković, 2013 according to Stojadinović, 2017: 46).

By analyzing the contents of the subjects Musical culture and Serbian language in all four grades, the possibility of correlation can be observed. In the lessons of the Musical culture subject, when processing songs about friendship, family, the world that surrounds the students, as well as during musical dramatizations with the analysis of literary and artistic text, a correlation with the Serbian language subject is realized. The contents in the first grade proposed by the curriculum for both subjects are numerous and a correlation can be made between almost all of them. For example, considering that the songs of Ljubivoje Ršumović, Oh that the school is beautiful and Children are the decoration of the world are present in the contents of both subjects, the teacher can first process the text of these songs in the serbian language classes, after which he can process them by ear in the music culture classes. In the second grade, although the same contents does not appear within the mentioned teaching subjects, when processing folk songs and children's songs, the correlation of the subjects Musical culture and Serbian language is achieved. For example, a correlation can be made between Stanko Korunović's Spring poem, which is covered in musical culture classes, and Jovan Jovanović Zmaj's Spring day. After the students have processed the Spring poem in musical culture classes, the teacher can in the serbian language classes, after processing the text of the song Spring day, play Stanko Korunović's Spring poem to the students in the final part of the lesson. Although even in the third grade, the same contents do not appear in the curricula of these two subjects, the correlation is also achievable. For example, there is a possible correlation between Branko Milićević's Lullaby, which is covered in musical culture classes, and Branislav Crnčević's Angry bear, which students learn in serbian language classes. In the fourth grade, for example, Nikola Gregović's poem My grandmother can be connected with Branko Ćopić's poem The Moon and his grandmother, which is taught in serbian language classes.

By connecting these teaching contents, the outcomes of both teaching subjects are partially achieved - students present their impressions of the work and understand the contents and messages of the literary and artistic works; they sing by ear/from the sheet music songs of different character and mood and associate the songs with situations close to them; apply the correct way of singing and the agreed rules of behavior in group singing; speak shorter texts aloud; recognize songs and talk about their experiences orally; participate in the stage performance of the text, etc.

## **2.2. CORRELATION OF THE SUBJECT MUSICAL CULTURE AND THE WORLD AROUND US/ NATURE AND SOCIETY**

The subject The world around us/Nature and society aims for students to get to know themselves, the world that surrounds them and train them for a responsible life in that world (Rulebook, 2017). Considering the objective of the subject The world around us/Nature and society, it is noticeable that the possibilities of correlation with the subject Musical culture are big. There is almost no counter, song or musical game that is not literary or programmatically related to some natural or social phenomenon. Correlative connections are "reflected in connecting the character of the music with the determinants of a certain concept that is adopted" (Zdravković, 2017: 331).

The analysis of the curriculum shows that the performance of musical games, songs and counters about plants, animals, holidays and society creates a correlation between these two subjects. In the first grade, for example, in music culture classes, students cover a song performed by the children's choir "Magic" Slow down by the school where, when analyzing the text of the song, they become familiar with safe traffic behavior on the way from home to school (moving along the street with and without sidewalks, crossing the street, a safe place to play), which is precisely one of the contents covered in the world around us classes. In the second grade, with the cover of Stanko Korunović's song Autumn, the students are also introduced to the changes in nature and the activities of people depending on the

seasons, which they cover in the classes of the world around us. By listening to Camus Saint-Saëns's composition *Carnival of Animals* (Swan, Antelopes, Fossils, Turtles) in the third grade, students can learn about the importance and protection of land/water and terrestrial/aquatic life communities by discussing the composition, impressions and analyzing it - content that is covered in nature and society classes. Through the learning of the poem *My hometown* by an unknown author, in the fourth grade, during the analysis and learning of the text, the students also discuss and get to know the natural characteristics of Serbia - relief, water and forests, which they cover in the classes of nature and society.

By connecting the mentioned contents to a certain extent, outcomes such as - students connect musical works in relation to situations close to them; sing by ear/from the sheet music songs in different moods; explain in their own words the experience of their own performance and of others; behave in such a way that they respect the differences of their peers and other people; protect their own, school and debt property; recognize the forms of appearance of water in the immediate environment: streams, ponds, lakes; recognize the appearance of the land in the immediate environment: plain, hill, mountain; identify plants and animals from the immediate environment based on external appearance; nurture and with their behavior do not endanger the plants and animals in their environment, etc.

### **2.3. CORRELATION OF THE SUBJECTS MUSICAL CULTURE AND ART CULTURE**

The Art culture subject "aspires to learning and creative expression, free research and familiarization with challenges based on shaped thinking, artistic expression with visual effects, symbols of one's ideas and feelings, less teaching strategy. In integration with musical elements and perception, with the use of audio-visual modern means, clear ideas about what should be acquired by hearing are acquired" (Zdravković, 2017: 333). Due to "the natural connection of related teaching contents from two different artistic fields, which interpenetrate and complement each other, the possibilities for establishing a correlation are diverse and numerous, and acceptable and stimulating for students" (Cicović Sarajlić, Milentijević, Trakilović, 2024: 185). When listening to different compositions, students can transfer their feelings, experiences and observations to paper and show them with different techniques, materials and colors. Artistic expressions under the impression of music are very valuable and help to better convey the experience when listening to instrumental pieces of program music.

Analyzing the curriculum, it can be seen that there are numerous teaching contents suitable for the correlation of these two subjects. In the first grade, for example, students are introduced to the programmatic composition *Flight of the Bumblebee* by Nikolai Rimsky Korsakov during music culture classes. After recognizing the instruments and performers, as well as the essence of the composition itself, i.e., that the composer wanted the clarinet and violin to evoke the flight of a bumblebee, and the orchestra the sound of an approach - students can illustrate their experience of the composition and create their original work of art. By listening to and analyzing Robert Schumann's composition *The Wild Rider*, in the second grade, i.e. noting that the composer evoked the hoofing of a horse with the piano, then that the dynamics is forte for that reason, and the tempo is fast - students can transfer and illustrate their observations on paper using different painting techniques. Then, for example, in the third grade, after analyzing Antonio Vivaldi's composition *Spring* (first movement), getting to know the composer's idea to evoke spring, then analyzing the instrumental composition and getting to know the baroque orchestra (violin, viola, cello, double bass, flute, oboe, trombone and harpsichord), students can use different selected materials and colors to evoke the beauty of the melody and the season. In the fourth grade, after analyzing the composition of Sergei Rachmaninov's *Italian polka*, recognizing the tempo and the piano as an instrument that performs the composition, they can use different techniques such as graphite pencils or tempera to evoke the melodiousness of this polka.

Some of the outcomes that can be realized by the correlation of the teaching contents of these two subjects are: students respect the agreed rules when listening to music; describe their feelings about the music they listen to; distinguish instruments by sound color and expressive possibilities; connect the character of the work with the choice of instruments and elements of musical expressiveness; recognize a musical theme or a characteristic motif that is repeated in the piece listened to; express ideas, interests, feelings, emotions and imagination with traditional art techniques, etc.

### **2.4. CORRELATION OF THE SUBJECTS MUSICAL CULTURE AND MATHEMATICS**

The goal of the Mathematics subject is that "by mastering mathematical concepts, knowledge and skills, the students develop the basics of abstract and critical thinking, positive attitudes towards mathematics, the ability to communicate in mathematical language and writing, and apply the acquired knowledge and skills in further education and solving problems from everyday life, as well as to form the basis for the further development of mathematical concepts" (Rulebook, 2018: 3). Musical contents

implemented in the contents of the teaching subject Mathematics “create conditions in which students come to an essential understanding of concepts that are mutually equivalent, which supports the construction of concepts in both subjects and thus enriches the contents” (Savić, 2018: 130-131). The teaching contents of the mentioned subjects that can be connected are not numerous, however, it is possible to achieve a correlation.

By covering songs that talk about numbers and encourage students to count, such as: Minja Subota Seven, Zorislava M. Vasiljević The horse has four legs, Eci peci pec and En ten tini in the first grade, it is possible to achieve correlation between the subjects of Musical culture and Mathematics. With these songs, students will develop mental representations of the concept of number (Savić, 2018) and create the basis for “creating a realistic context for gatherings” (Savić, 2018: 125). In the second, third and fourth grades, given the different nature of the subjects Musical culture and Mathematics, the possibilities for correlation of the mentioned subjects are small. However, the correlation of the contents of the subject can be achieved by connecting the duration of tones and fractions, which will contribute to the easier acquisition of knowledge about the duration of tones, i.e. that, for example, a half note lasts twice as long as a quarter note, an eighth note twice as short as a quarter note, and so on.

Some of the outcomes that can be achieved by correlating the content of these two subjects are: students say the numbers in rhythm with the movement; sing songs by ear/from sheet music with different contents and mood; explain in their own words the experience of their own performance and of others; use ordinal numbers; distinguish even and odd numbers; orally add and subtract numbers; observe the parts of the whole and write the fractions; compare fractions etc.

## **2.5. CORRELATION OF THE SUBJECTS MUSICAL CULTURE AND PHYSICAL EDUCATION**

The application of movements within the teaching of musical culture offers the possibility of correlation with the contents of the Physical education subject. Dance connects both subjects and through it, students get to know traditional folk dances and develop musical and physical abilities. In these games, the movements are coordinated with the music depending on the tempo, rhythm, melody and dynamics. During these games, the teacher should lead the students to listen and express the music with movement. The performance of folk dances in “physical education classes is conditioned by the previous processing of the text and melody of the song in the music culture classes, and the knowledge acquired by the students in the music culture classes is used for the realization of dance structures (folk dance steps) in physical education classes” (Đorđević, 1971 according to Stojadinović, 2017: 91).

Analyzing the curriculum, it can be seen that there are numerous opportunities to connect the teaching contents of the mentioned subjects. In the first grade, the folk dances I sowed flax and Quince ranks appear within the contents of both subjects. Then, in the physical education classes, one folk dance is covered by choice. Given the possibility of choosing, it can be I pick grapes, Vasa's folk dance, Folk dance, Song in folk dance or Kolariću paniću, which are already covered in music lessons. In the second grade, the same teaching contents does not appear in the curricula of both subjects, however, in the physical education classes, one folk dance is also covered, which can be Quince ranks, Banat folk dance, Divna, Divna, Moravac folk dance, Walk or Kolariću paniću – folk dances that are covered in music culture classes. In the third and fourth grade, although the teaching contents differ, the correlation is realized through the implementation of dance steps in music culture classes.

By correlating the mentioned teaching contents, the results of both teaching subjects are partially achieved, namely: students recognize folk music; become familiar with the folklore traditions of Serbian and other nations; create movements with the music they perform; maintain balance in various movements; perform movements, exercises and compositions with musical accompaniment; perform children's and folk dances and recognize the beauty of movement.

## **3. CONCLUSION**

By applying correlation as a modern model of teaching, it is possible to connect individual segments of different teaching subjects into meaningful units. The boundaries between subjects are erased, and students learn to look at problems from different angles, ask questions and look for answers. Correlation of teaching subjects in classroom teaching is extremely important for the overall development of students and permanent acquisition of knowledge. The contents of the activities within the musical culture classes offer the possibility of correlation with almost all subjects in classroom teaching. The teaching contents of musical culture are interwoven with the teaching contents of the serbian language through the activities of listening to music and processing different songs about friendship, family, nature; with the teaching contents of the world around us/nature and society during the processing of various songs and counters

that talk about the world and nature; with the teaching contents of art culture through artistic expression under the influence of music; with the teaching contents of mathematics when processing numbers and computer operations. The possibilities of applying this model of modern teaching are numerous, and it is the teacher's responsibility to connect the contents of the mentioned teaching subjects into meaningful units and realize them within the teaching in order to improve the teaching process.

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# CELEBRITY ENDORSEMENTS IN SUPER BOWL ADVERTISING DURING THE PERIOD 2021–2025

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**Abstract:** The Super Bowl is the final game of the American football season, attended live by tens of thousands of fans every year, and is a mega sports event that is arguably similarly as important as the FIFA World Cup and the Olympic Games. Moreover, this event is very significant in terms of the worldwide television audience and boasts the most expensive 30-second ad slots in the advertising realm. While doing an academic literature review about Super Bowl commercials, we noticed that many studies emphasize that celebrity endorsement has a positive impact on ad likeability and therefore, consumers' positive attitude towards the brand. This prompted us to conduct our own research to investigate how many advertisers at the Super Bowl use a celebrity endorsement strategy to differentiate themselves and get the attention of the target audience. The first step of our research involved an in-depth review of all Super Bowl-related media assets from the last five years (found in a database on the site Ads of The World) with the aim of evaluating the celebrity presence. A subsequent statistical analysis helped us calculate the share of ads containing celebrity endorsers in the researched time period (2021-2025). Our results showed that every year, more than half of the Super Bowl ads had some form of celebrity presence, with the highest share being 63.08% in 2024. In the second phase of the research, we sorted all identified celebrities by their vocation and the figures showed that companies most commonly chose athletes, actors, and musicians as their endorsers. These findings reaffirmed that celebrity endorsement is an important strategic element in advertising, thereby opening avenues for future research which could go in three directions: calculating the prevalence of celebrity endorsers by product category; exploring which celebrity vocations consumers see as most credible and influential; and examining how traditional celebrities compare with emerging influencers made famous through digital media.

**Keywords:** *Super Bowl, advertising, celebrity endorsement, influencer marketing, media strategy.*

**Field:** Social sciences

## 1. INTRODUCTION

Contemporary American culture is so closely tied to the Super Bowl that this sporting event consistently holds the title of the most-watched television broadcast in the U.S. (Tomkovick et al., 2001), boasting not only its sky-high ratings but also other impressive statistics. According to Marketing Charts, an industry analytics site that specializes in providing media and advertising related data, the last edition of the Super Bowl, number LIX, held in February 2025 in New Orleans, was seen by over 127 million U.S. viewers and organizers valued their 30 second ad slots at as high as 8 million U.S. dollars (MarketingCharts, 2025).

Such a ludicrous advertising price comes as no surprise given the fact that, as O'Reilly et al. (2008) put it, the Super Bowl is well known for being the main place where new and interesting television ads are first shown to a big audience, a large part of which is drawn to the messages delivered during the breaks as much as to the game itself. Another advantage of the Super Bowl is that it offers advertising companies opportunities to communicate with the audience not just via ads shown during the game, but also through the accompanying fan event, the NFL Experience, television and newspaper ads and many other public relations opportunities (O'Reilly et al., 2008). The Internet offers yet more potential opportunities for connecting brands with possible consumers, as Super Bowl ads, once uploaded to social media and video platforms, can be viewed again and again, extending their reach to a much broader audience as time goes on, an effect that is further amplified by today's widespread use of mobile devices with online access (Kim et al., 2013). The power of the Super Bowl is such that it prompts real time online engagement already during the broadcast itself: 78% of the audience are active on social networks while the game is on and 65% of them tend to engage with brands in that timeframe (Bharadwaj et al., 2020). Given that the Super Bowl is the largest televised media event in the U.S. and a significant cultural touchstone, advertising during its broadcast is believed to have a significantly greater public impact than advertising in different media contexts (Jeong et al., 2024), especially because many of the Super Bowl ads, beyond the aesthetic value, underscore the strong ties between American culture, capitalist values

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and consumerism (Dubinsky, 2023).

Hiring celebrity endorsers is one of the strategies most commonly used by Super Bowl ad creators. Li and Chan (2025) point out that Super Bowl advertisers strategically rely on endorsements by public figures, largely because of the belief that their star power immediately captures the audience's attention. Before we review the existing academic perspectives on this topic, we must look at how researchers have defined the term "celebrity". The very first definition, coined by Friedman & Friedman (1979), explains a celebrity as an individual known to the public for achievements unrelated to the category of product they promote. Building on this, McCracken (1989) expanded this definition by adding that a celebrity, in the context of endorsement, is someone who uses their recognition on behalf of a consumer good by appearing with it in an advertisement.

Belch and Belch (1995) emphasized the qualities of celebrities, describing them as people able to share objective information like knowledge, experience, skills and trust. Turner's (2014) definition of a celebrity goes in a whole new direction, describing the term as people who are more famous for their private lives than their work, thus leaving out their personal qualities or achievements.

The author Rojek (2001) goes a step further by identifying three distinct paths to celebrity status: ascribed greatness (inherited, as seen with royalty), achieved renown (earned through talent or skill) and attributed glory (granted by media attention, typical of reality television figures).

Brooks et al. (2021) noticed that existing definitions rarely address where recognition comes from and how individuals build celebrity capital, instead perceiving the celebrity as someone who is already widely recognized, as well as trying to define who counts as a celebrity and who doesn't.

Leveraging star power is a strategy often used by marketing professionals willing to invest millions of dollars annually on endorsements from famous individuals, hoping that their personal likeability will somehow be transferred to the ads they appear on and brands they promote (Li & Chan, 2025). This reasoning is justified as the public tends to perceive celebrities as figures with strong social standing and associates them with qualities like honesty, reliability, kindness, and trustworthiness (Hussain et al., 2020). The term "celebrity trustworthiness" refers to how honest, believable, and sincere a celebrity appears to audiences when endorsing a product. (Hussain et al., 2020)

Overall, perspectives on celebrity hiring seem to take three main approaches. The first asserts that celebrity endorsers have a strong effect on ad likeability and consumer attitudes. The results of an analysis by Wang and Close Scheinbaum (2017) show that when consumers think a celebrity endorser is attractive and trustworthy, it will positively impact their attitude toward the brand, enhance brand credibility, and result in higher purchase intention toward the endorsed product. These findings are backed up by Spry et al. (2011), whose research reveals that celebrity endorsement improves brand recognition and recall, ad effectiveness and also consumer purchase intention and action. The same study also shows that though celebrity endorsers should optimally be individuals who are perceived as having credibility based on their attractiveness, trustworthiness and expertise, even someone with less than credible expertise can help the brand grow (Spry et al., 2011). Eisend and Langner (2010) state that the attractiveness of a celebrity primarily enhances immediate attention and initial positive attitudes toward an ad, while their expertise has a stronger influence on sustaining a positive attitude over time. Li & Watanabe (2022) found, precisely in the context of Super Bowl advertising, that ads increase consumers' online search activity for advertised brands, with ad likability playing a key role in driving post-exposure search volume.

The second perspective argues that the celebrity endorser's impact on how positively ads are viewed is either weak or limited and may only occur in conjunction with other factors that may have a simultaneous impact. Yelkur et al. (2013) argue that the celebrity by itself will not increase ad likeability, but if there is useful product information present, the celebrity endorser may contribute to the overall positive effect. However, many other aspects of Super Bowl advertisements serve as better predictors of likeability than celebrities, for instance: humour, length, product category type and presence of animals (Tomkovick et al., 2001). In other words, in cases when the Super Bowl audience is already eager to watch the ads, celebrity endorsers probably don't cause people to like the message any more (Tomkovick et al., 2001).

The third line of thought states that celebrity endorsement has little (if any) impact on ad likeability and interest in the product. Knoll & Matthes (2017) show that celebrity endorsements have no overall effect on the consumers' responses and that they tend to be less effective than other forms of endorsement, such as quality seals and awards.

Celebrity endorsements offer a number of benefits, but they also involve certain disadvantages. For example, when advertisers use celebrities, there is concern that the audience may focus on the celebrity alone and, thus, fail to recognize the brand (Knoll & Matthes, 2017). Another disadvantage is that the celebrity could potentially lose their relevance or become too overexposed to the target audience

(Tomkovick et al., 2001). While some celebrity endorsers can be great for getting attention, they often do little to help establish themselves as credible professionals (Bharadwaj et al., 2020). Another of the often-heard disadvantages, particularly related to the Super Bowl, is that there is still no specific evidence that advertising expenditures provide returns on investment. (Lee & Ko, 2021)

## 2. METHODOLOGY

The purpose of our research was to assess Super Bowl advertisers' attitudes toward including celebrity endorsement in their commercials. Thus, we focused on a five-year period from 2021-2025, which is recent enough to capture contemporary advertisers' attitudes and broad enough to allow for meaningful analysis.

The first research phase examined how often advertisers employed celebrity endorsers in their Super Bowl advertisements. This was achieved by methodically reviewing every media asset that aired during the specified period. Our original intent was to use the USA Today's Ad Meter ([www.admeter.usatoday.com](http://www.admeter.usatoday.com)), which has long been a reference point for Super Bowl-related studies, but due to the redesign of the website, which now only gives access to the yearly favourite ads, this source was no longer useful. Hence, we settled on using Ads of the World ([www.adsoftheworld.com](http://www.adsoftheworld.com)) media database that has not been widely used in high-impact academic research studies but has been cited in other relevant papers such as Lapchick & Sanders (2015), Alčaković (2023) and Chandrasekaran et al. (2018).

In total, 258 campaigns matched our timeline and many of them submitted more than one media asset (the main ad plus various teasers and trailers). For every campaign, we reviewed all available content to find out if a celebrity was featured or not. In cases of uncertainty, we used additional methods such as reverse image searching, using facial recognition tools, and checking other credible media sources to verify who was in the ad and whether they were publicly known.

For this research project, the parameters for identifying a celebrity were based on an established and previously mentioned definition: a celebrity endorser is a publicly recognizable name that is already well-known for the achievements unrelated to the product or service they are endorsing. That said, we established additional criteria to ensure more accurate research, thus only counting appearances where the celebrity clearly appeared on screen. Our approach hence excluded celebrity voiceovers, short cameos that were hard to recognize, as well as puppet and cartoon characters with previously gained celebrity status.

In the second phase of the research, the identified celebrities were categorized, based on what they're famous for, to discover possible patterns or preferences among Super Bowl advertising strategists.

## 3. RESULTS AND DISCUSSION

The findings of phase 1 of our research were presented in Table 1, showing the total number of ads that aired during each edition of the Super Bowl between 2021 and 2025, as well as the number and percentage of ads featuring celebrity endorsers.

Table 1 - Overview of the Presence of Celebrity Endorsers in Super Bowl Ads (2021–2025)

Year	Total number of campaigns	Number of campaigns featuring celebrity endorsers	Percentage of campaigns featuring celebrity endorsers
2021	51	29	56,86%
2022	30	16	53,33%
2023	48	30	62,50%
2024	65	41	63,08%
2025	64	37	57,81%

Source: Authors research

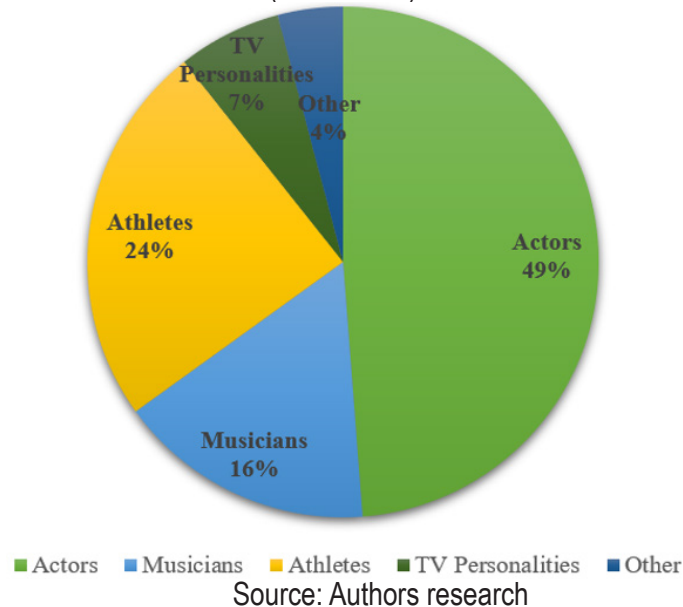
From the figures, it was clear that the percentage of ads featuring celebrities declined between 2021 and 2022, rose between 2022 and 2024, and dropped again between 2024 and 2025. However, the fluctuations were minor, and the overall presence of celebrity endorsers remained consistently high, making up more than half of the ads each year and peaking at 63.08% in 2024.

This result was not surprising considering that the Super Bowl is considered to be a media spectacle whose viewers are always being overstimulated not only by the events on the field and halftime performances but also by a flood of high-end commercials. Advertisers who chose to opt for celebrity endorser strategies clearly believed that they could successfully attract audiences' attention despite

oversaturation with fun advertising content, and potentially also hoped that celebrities' personal credibility could lead to a long-term increase in positive brand perception.

Graph 1 presented a percentage-based classification of celebrity endorsers' occupations in Super Bowl ads from 2021 to 2025, summarizing the results of the second phase of our research.

Graph 1 – Percentage-Based Classification of Celebrity Endorsers' Occupations in Super Bowl Ads (2021–2025)



Across 153 ads that featured public figures, we identified a total of 412 individuals that we classified as celebrity endorsers. Notably, most of them (49%) were actors, a group that consisted of movie or television stars, as well as comedians. Athletes from a variety of sports occupied second place with 24%, and their group also included retired athletes currently active in areas of coaching or commentary. Musicians, regardless of the genre they perform, were grouped together and ranked third in representation (16%). Considerably lower (7%) was the representation of non-acting TV personalities (including reality program stars, hosts, and all other individuals regularly appearing on television). The remaining 4% consisted of other professionals, including activists and content creators.

There are several possible discussion points for this data distribution. First, the Super Bowl is an event that invariably features a very high number of commercials, thus creating a high potential for each individual ad to go wholly unnoticed. Moreover, by using the most universally recognizable celebrities – actors, athletes, and musicians – advertisers clearly tried to stand out and make the public remember their product. Another plausible point could be that the advertisers intended to use globally popular individuals as a way to get attention from the international audience, particularly those living in places where Super Bowl ads can only be accessed online. Also, the great representation of actors might be explained by the fact that they possess the skills to naturally interpret a wide range of scenarios.

This research has several limitations which we recognized throughout the study.

First, our findings were based on media assets located on the Ads of the World website, and if that database did not include everything (in other words, if some ads were missing), the findings might not reflect a fully accurate picture. In our opinion, the likelihood of such variation is negligible, particularly because a substantial number of media assets were examined for each year included in this research.

Secondly, in developing our dataset, we applied clear selection criteria that excluded certain types of celebrity appearances in advertisements, such as brief cameos or voiceovers. Furthermore, our classification of active dual-career celebrities was based on the area in which they were currently more prominent or successful. While we believe this was a reasonable way to ensure consistency, it may have caused some minor distribution biases across occupational categories.

Finally, while we believe we reviewed and classified all relevant media assets with care, the possibility that some celebrities may have been unintentionally omitted as endorsers cannot be fully ruled out.

## 4. CONCLUSIONS

Our research shows that the majority of Super Bowl advertisers firmly believe in the value of celebrity endorsements, as evidenced by a high percentage of ads featuring public figures across the past five editions of the event. Our analysis of ads broadcast from 2021 to 2025 also suggests a clear imbalance in how different celebrity professions are represented in Super Bowl ads, with some being chosen far more frequently.

This research could help generate a number of potential future research opportunities. Scholars could investigate whether celebrity endorsements are more predominant in certain product categories, as well as which celebrity professions consumers see as most credible and impactful. A separate area of research could investigate how traditional celebrities compare to emerging influencers who gained notoriety in digital spaces.

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## UTOPIAN MOTIFS IN THE NOVEL “ZULEIKHA” BY GUZEL YAKHINA

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**Abstract:** Contemporary Russian writer Guzel Yakhina, in her novelistic opus, examines lesser-known aspects within the traditional thematic framework of the Russian Revolution and Civil War, such as the dispossession of the Tatars, the life of the Volga Germans, or the famine in the Volga region. In her debut novel ZULEIKHA, the author thematizes the metamorphosis of the main character and her path to gradual emancipation and self-knowledge through a series of trials and changes she experiences during the civil war. This paper reveals the presence of numerous basic motifs of literary utopia and examines their function in shaping the ideological structure of this novel. Several differences from the usual utopian model are observed because the author replaces the typical isolated utopia with a penal camp, focusing more on the main character’s personal growth and self-improvement rather than on social issues and creating a new social order. Since one of the significant aspects of the main character’s personal growth is her liberation from gender stereotypes, the work also touches on gender issues, drawing several parallels between this novel and works of feminist utopia. The parallel with Zakhar Prilepin’s contemporaneous novel, THE MONASTERY, featuring similar themes and creation dynamics, is also noteworthy. Both works advocate the view that love is a force capable of turning universal hell into individual, personal paradise. In the author’s words, it is a novel about “overcoming mythological consciousness, whether male or female” (Yakhina 2016). With this novel, the author Guzel Yakhina enters into a polemical relationship with both utopian and camp themes, stepping out of the socio-political sphere into the sphere of anthropological and religious antinomies.

**Keywords:** *Guzel Yakhina, literary utopia, camp theme, gender stereotypes.*

**Field:** Humanities

### 1. INTRODUCTION

In the context of the contemporary Russian literary scene, Guzel Yakhina has achieved remarkable success and can rightly be considered a literary phenomenon. She began her creative journey in 2013 by publishing short stories in the literary magazines NEVA and OCTOBER. In 2014, she presented chapters of her debut novel, ZULEIKHA, for the first time in the magazine SIBIRSKIE OGNI, which she wrote while working on the screenplay for the Moscow School of New Film that she attended. The history of the novel’s publication reflects a true “overnight success”—for a year, she submitted the manuscript to numerous publishers without success, receiving a response from only one, which was a rejection. She then sought assistance from a literary agency, and with their help, the novel saw publication in 2015. ZULEIKHA soon became a literary sensation with its story of a Tatar peasant woman exiled to Siberia after being dismembered; it won readers all over Russia and received the highest honors, including the Russian Big Book and Yasnaya Polyana awards. In her next novel, A VOLGA TALE (2018), Yakhina once again turns to a historical theme—the life of a German colony on the Volga during the first decades of the 20th century. This work, written in the spirit of magical realism, was rated by many critics as artistically more successful than its debut (Chernyavskaya, 2018; Gavrikov, 2022), and its value is confirmed by the prestigious Russian Big Book award, which the novel won again. With A VOLGA TALE, Yakhina has established herself as an author who adeptly explores the theme of “the little man in the Great History” (Basinskiy, 2018), weaving in elements of lyricism, folklore motifs, mythology, and subtle fantasy throughout her prose. Yakhina also devotes her third novel, TRAIN TO SAMARKAND (2021), to a lesser-known chapter of Soviet history—the evacuation of children from the famine-stricken Volga region in 1923. Through the destinies of children and adults who follow them, Yakhina explores themes of sacrifice and hope in the conditions of a shattering reality. This novel was also shortlisted for the Russian Big Book award, which speaks of the consistency and quality of her literary work.

It appears that a key part of the success that the novel ZULEIKHA has achieved with the audience lies not so much in the thematicization of the Soviet past and its painful fractures as in the specific lens through which this history is illuminated — the prism of an unusual protagonist. The eternal literary theme of the “little man in the whirlpool of the Great History” is here transformed into the fate of a “little woman” caught in a whirlwind of epochal events, shown from a perspective that bears the characteristics of women’s writing: a narrative that emphasizes the inner world of the heroine, her emotions, inner transformations, and subjective experience of reality, rather than the historical and social context as such

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(Sargsyan, 2023). This kind of reading opens up space for interpretations that focus on the character of the main character but also on the richness of folklore, mythological, linguistic, and cultural elements that make up the textual world of the novel. Numerous scientific papers have already dealt with these aspects, while in this paper we try to shed light on a relatively neglected dimension — the presence of utopian motifs and their function within the novelistic structure.

## 2. UTOPIA

The category of utopia is present in very broad areas of human creativity, and therefore it is difficult to define it unambiguously. Broadly understood, utopia is synonymous with contemplating paths to an ideal social order or interpersonal relationships, an ideally conceived country, or a community with perfect social relations where well-being and happiness reign (Klajn & Šipka, 2006, p.1297). The authors of utopian literature, in their works, give an idea of an ideal society in accordance with their value system and historical context. Utopian works are often set in a perfect society and take place in an idealized world. As is well known, the concept of utopia and its fundamental form were conceived by Thomas More in 1516 in his work *UTOPIA*, but the concepts of an ideal place, a land of abundance and bliss, and happy and carefree inhabitants have been present since pagan times. In the Epic of Gilgamesh, there is a description of the divine garden, which is not a utopia in the strict sense but contains some recognizable utopian topos: already here, utopia is conceived as a fortified city, a magical garden, or an island, which will be the basis of most recent utopias. Homer's myth of Elysium and Hesiod's Golden Age also contain utopian ideals. Plato's *REPUBLIC* is the most famous ancient representation of an ideal social order, but the Old Testament story of the Garden of Eden has an immeasurable influence on the formation of older utopian representations. As noted by Zorica Đergović-Joksimović, it is significant "...not only as a story of the original sin, but also as a source of hope that somewhere hidden, there exists a paradise on earth to which one can return, either through a humble Christian life or literal seeking." (Đergović-Joksimović, 2009, p.49). It is precisely the search for the land of bliss that marks ancient and early Christian utopias. The "classical" utopia, which originates in the works of Thomas More, François Rabelais, Francis Bacon, and others, is based on the principles of rationalism, where the greatest attention is paid to social institutions, and order and harmony are the result of the efforts and virtues of the inhabitants themselves. The canonical scheme of the Renaissance utopian work, largely inspired by great geographical discoveries, is based on a description of an ideal city, which the narrator, most often a traveling sailor, arrives at after a journey full of temptations (often shipwrecks), as if he had been rewarded for his courage by arriving at a port of peace, order, and enlightenment. Taught by the experience of living in an ideally arranged community, the visitor to the utopia returns to modern society, in order to spread the acquired knowledge. With the development of human society and a new historical context, the utopian idea acquires new dimensions, enriches itself with new motives, but retains the basic aspiration to create a protected and isolated space of social harmony, material security and general prosperity. The negative aspects of utopian concepts, already contained in Plato's *REPUBLIC*, stem from the "best intentions" of utopian aspirations to portray the life of happily ordered societies, while the individual principle is ignored or completely suppressed.

## 3. UTOPIAN MOTIFS

Guzel Yakhina's *ZULEIKHA* takes place in the 1930s, in an era of social fractures and collisions resulting from a violent attempt to create an essentially utopian, communist society. However, it is not a historical epic or a utopian novel, but a story about the maturation and liberation of the main character. The novel explores her "eye-opening" experience (as suggested in the original title), providing a deep look into herself and offering a clear perception of the world around her and her place within it. Although it basically touches on the socio-political sphere only as a framework for the narrative, the novel contains a number of recognizable utopian motifs. One of them is the motif of travel — not only as physical movement and conquest of the unknown, but as a process of internal transformation and self-knowledge. The search for a utopian space, whether in the form of a land of bliss or an earthly paradise, is accompanied by dangers and temptations, which is a motif deeply rooted in pagan tradition and early Christian texts. Zuleikha's journey to the east—the symbolic direction of paradise, according to the early Christian apocrypha — is just such a journey. Through a series of personal losses and sufferings, she undergoes an inner metamorphosis. Her husband's death and the abandonment of the family home mark the beginning of her exit from the private, subordinate sphere and into social reality. Zuleikha's departure from the confines of her family home signifies not only a loss of protection but also complete exposure to the cruelty of a new reality. From the first moments of her journey, she faces unspeakable humiliations: surrounded

by unknown men, witnessing hunger, disease, and death, and being transported in cattle wagons. This part of the novel emphasizes the brutality of the new order, particularly strikingly illustrated through the desacralization of space in the scene of spending the night in a mosque that has been converted into a cattle shelter. Zuleikha is placed on the "male" side, the mullah dies that same night, and Ignatov and Nastasya have sexual intercourse, which further emphasizes the violation of the sacred. Loss, humiliation, dehumanization, and exposure to scenes of physical, religious, and moral destruction are, for Zuleikha, the trials she will overcome at the beginning of her journey to self-knowledge.

The final destination intended for the settlers bears the features of a utopian new world, which will be colonized by the efforts of future inhabitants — it is an uninhabited place on the banks of the Angara River, surrounded by a symbolic "sea" of the Siberian rainforest. This space, resembling a new beginning in the spirit of the Puritan colonies, symbolically represents a difficult-to-reach lonely island, which provides protection and refuge for the utopian community. They arrived there by ship, but after the shipwreck, only about thirty people survived, including agronomists, painters, and intellectuals, but also fishermen, peasants, and artisans — the founders of a new community. All of them collectively participate in the construction of a planned, organized space — work and residential buildings — which is a key element of the utopian vision, in which society is shaped from the beginning, through reason, work, and community. Even the name of the colony, devised by the settlers, Semruk (Seven Hands), carries the symbolism of human hands capable of creating an entire microcosm.

For Zuleikha, the new settlement becomes a space of personal transformation, emancipation, and self-discovery. In a place that marks a new beginning for the community, she begins to write her own new identity. From a "lazy woman," as her husband and mother-in-law humiliated her, she becomes a woman capable of replacing the entire work unit with her work. From the position of a submissive, invisible servant in the family hierarchy, she grows into a socially useful individual — her work is no longer in the service of the patriarchal structure but contributes to the survival and progress of the community. She nursed a vicious mother-in-law, and now she is a nurse; she was accused of being barren because her newborn children died, and now she is the mother of a son. Her personal development is parallel to the construction of a new world — and in this process, utopia is realized not only as a space but also as an internal possibility of transformation. In addition to social and work emancipation, Zuleikha also undergoes an emotional rebirth, which is reflected in the gradual liberation from patriarchal notions of love, sexuality, and the role of women in intimate relationships. Her sexual experience goes through three phases: from object status and unquestioning submission in marriage, through a relationship with the doctor that she initiates as an act of gratitude and a sense of duty — but which he, guided by nobility, refuses — to the full acceptance of herself as a subject of desire in a relationship with Ignatov. It is in this relationship that Zuleikha takes the initiative for the first time, experiences pleasure, and builds a relationship based on equality and mutual trust.

Zuleikha is the one who experiences the greatest transformation in the colony, but she is not the only character who experiences the beneficial effects of her stay there. Although the colony's inhabitants are formally referred to as "convicts" or "resettlers," as the author describes them to avoid an explicit camp context, there are individuals among them who embody the ideal citizens of utopia. These are cultured, educated, and noble people like Dr. Leibe, the Sumlinsky couple, and the painter Ikonikov, who, with their knowledge and experience, build the foundations of a cultured, humane community. They become mentors to Zuleikha's son Yuzuf, symbolically representing a new generation in which meaning and hope are invested. Ikonnikov teaches him painting and reveals the world to him through art — he paints Russian and world landmarks, landscapes, plants, and animals for him, creating a "painting encyclopedia" as a form of visual education. Isabella teaches him French, the language of the former Russian aristocracy, while Dr. Leibe introduces him to the secrets of anatomy. This instructive aspect of utopia — where a newcomer to the community gains knowledge from the wise and then continues his journey into the "real world" — is realized precisely in the figure of Yuzuf. He is the only one who leaves the colony forever, carrying with him the legacy of its highest values.

#### 4. GENDER STEREOTYPES AND FEMINIST UTOPIA

Zuleikha's liberation from the gender stereotypes and imposed roles that dominate the opening part of the novel, where Zuleikha is presented as submissive, invisible, and completely subordinate to a man in a patriarchal family, is a significant aspect of the novel. The emancipation of Zuleikha takes place within the framework of a utopian commune, which can be considered a conscious thematization in the spirit of a feminist utopia. While early utopias, such as More's *UTOPIA*, were essentially conservative in terms of gender roles, marriage, and sexuality — forming an ideal society for men — feminist utopias focus

precisely on women's liberation from patriarchal constraints, especially in the realm of reproduction. In the golden age of feminist utopian fiction in the 1970s, women's worlds were often radically redefined: either men were eliminated (biologically, culturally, or mythologically), or they were societies in which gender had lost its significance. In this context, it is no coincidence that the development path of Zuleikha is realized only after the death of her husband, the symbolic bearer of patriarchal repression. In the works of classic feminist utopia, such as Charlotte P. Gilman's *HERLAND* (1915), women live without men in an isolated society based on cooperation and nonviolence. Similar to Gilman's novel, for Zuleikha, the space outside the patriarchal community becomes a space of personal growth. Although men in the settler commune have not been eliminated, social circumstances have changed—there is no family hierarchy, everyone is forced to cooperate—and therefore a different distribution of gender roles is possible. In the more radical vision of *THE FEMALE MAN* (1975) by Joanna Russ, where the existence of men is set as a prerequisite for women's freedom, essentially the same process is thematized: women's autonomy is possible only outside of traditional relationships. The death of Zuleikha's husband, therefore, has the same symbolism as the disappearance of male dominance in feminist utopias.

## 5. CAMP THEME

The organization of life in the colony, viewed outside the context of coercion, is reminiscent of Thomas More's utopian vision: a community of modest, hard-working individuals who spend their days in a strict division of labor, without much spare time, eat and sleep together in collective spaces, have no private property, and live in a spirit of equality and modesty. But the main difference is that this is a punitive community, not a voluntary one. It is precisely this forced nature of residence, the absence of freedom and choice, that turns the seemingly utopian structure into its opposite — a dystopia. The paradoxical feature of this novel is precisely this "replacement of theses," where the outside world is understood as chaos and threatening elements, and the penal camp as a utopian place, where personal development, motherhood, and love are possible. The inhabitants of the colony live in a utopian frozen moment, while outside it the most dramatic moments of Russian history unfold. The place of the novel's heroine's small personal happiness is remembered as one of the darkest stains of the Soviet era. To emphasize the thesis that self-realization and an almost idyllic life are possible even in camp captivity, the author softens or removes all motifs of the "terrible world." Death, although omnipresent, is not directly depicted; it is only communicated. Hunger and cold are just challenges that the residents overcome with united efforts and then remember as a hardship that brought them closer together. The end of the 1930s marked a period characterized by the most brutal Stalinist purges, and in the colony depicted in the novel, 1938 was notable for a predominance of birth rates over mortality. The fates of individual characters only indirectly and in a satirical tone speak of the persecution and imprisonment of leading intellectuals of that time in camps: Ikonikov was honored to create twenty-four busts of Stalin, Dr. Leibe is a famous surgeon and former university professor, the camp agronomist is a former member of the Ministry of Agriculture, and the elementary school teacher is the author of the textbook used there.

The novels *ZULEIKHA* by Guzel Yakhina and Zakhar Prilepin's *THE MONASTERY* (2014) are connected by a similarity of motifs in the way they rethink the camp space — not as an exclusive place of dehumanization and suffering, but as a potential focus of inner transformation. Both works feature the motif of a romantic bond between members of two opposing factions, a prisoner and a guard. Both novels articulate the thesis that hell and heaven are personal categories and that it is love that determines the character of space: it can transform the camp into a personal "paradise corner" in the midst of a general hell. Zakhar Prilepin's novel *THE MONASTERY* is a genre hybrid that can formally be classified as a corpus of camp prose, where historical, love-psychological, and adventure elements intertwine. However, at the heart of this narrative structure is a Christian context, which serves not only as a thematic framework but also as an ideological center that allows for the connection of diverse motifs into a single authorial vision (Osmukhina, Karpov, & Beloglazova, 2021). However, the differences in the treatment of the love motif essentially separate the two texts. In *THE MONASTERY*, the love relationship is not the focus but is only one aspect of a broader spiritual issue that encompasses sacrifice, moral ambiguity, and the possibility of repentance. Prilepin's heroes vacillate between the animal and spiritual principles but often remain stuck in the sphere of the physical, incapable of true transformation (Shchepalina, 2024). In contrast, Yakhina's *ZULEIKHA* epitomizes unconditional maternal love: at one point, she literally feeds her son with her blood, rejecting personal happiness due to the superstitious belief that it contradicts motherhood. Even the names given to the mother and son characters in *ZULEIKHA* reference famous Eastern lovers, which further enhances the symbolic layer of the love theme (Bukareva & Sushkova 2022), unlike the book *THE MONASTERY*, in which love is more of a temptation than a deliverance.

The inclusion of the love motif within the framework of camp literature is, it seems, possible only in a specific narrative and historical context — one in which the camp has not yet become a complete machine of dehumanization and the camp inmates have not been reduced to a mere survival instinct. This is precisely why Guzel Yakhina does not call her heroes "camp inmates" but "resettlers," thereby narrowing the repressive framework and leaving room for personal transformation and affective relationships. On the other hand, the plot of Prilepin's *THE MONASTERY* is set in the first, more "human" phase of the Gulag's existence — on Solovki, in the first camp of its kind — where the illusion of spiritual choice, repentance, and inner freedom still exists.

## 6. CONCLUSION

Although the elements of the utopian model are recognizable in the novel *ZULEIKHA*— collective life, the transformation of space, the emancipation of the individual — this work is not a utopia in the sense of genre, nor is it a typical camp prose. As the author herself points out, it is primarily a narrative about overcoming internal limitations, about a gradual liberation from the mythical, the given, the tacitly accepted (Yakhina, 2016). In this context, utopian motifs are not carriers of social change, but a means of poetically illustrating the inner transformation of the heroine — the moment when she comes into harmony with herself and her new position in the world. Instead of focusing on social utopias or ideologies, Yakhina locates her story in the realm of existential, anthropological, and spiritual polarities: captivity and freedom, guilt and redemption, fear and self-acceptance. It is this dimension that makes this novel exceptional and difficult to define in terms of genre.

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# SUMMER OUTDOOR ACTIVITIES IN DIFFERENT EDUCATIONAL SETTINGS – TWO “MODELS” OF PRACTICAL COURSE ORGANIZATION REGARDING CAMP LOCATION

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**Abstract:** The study aimed to assess specific segments of the anthropological status (AS) of PE Students (PES) concerning Age and Basic anthropometry, Body composition, and Functional/Health status parameters considered as potential cardiovascular risk factors. These segments are vital in addressing the students' preparation problems for the PE study's success. During their studies in higher education, one of the main tasks of PES is to strengthen and improve their health and continue developing their abilities and competencies for future professions as elementary and secondary PE teachers. PE Students need to be good role models for behavior to promote a healthy lifestyle among children and youth. Young adults who enter the university fall under the influence of specific factors associated with the need to creatively assimilate large amounts of information due to the necessity of forming professional skills and abilities in unique conditions of students' lives. Students have to meet and understand that the functional, practical training system has two mutually related aspects – pedagogical/educational and social/recreational. This aspect suggests that modern physical culture is a holistic (socio-educational) system that PES did not experience during their former education. This study was realized within a total sample of fifty-six (56) Males, PES of the first (n=28) and third-study-year (n=28), during Summer Outdoor Activities in different education settings (“Models”), regarding the camp locations: Gazivode Lake (Kosovo\*) G-1, and the coast of Aegean Sea (Korinos) K-2 in Greece. The authors evaluated the study data (three segments of AS, including 13 variables) with descriptive statistics (Mean, SD, Min-Max, C.var.%, confidence interval/range, MANOVA, and DISCRA analysis) and a test of the normality of results distribution. Descriptive statistics and data analysis presentation are in tables for the three segments of AS and 13 variables. Results analysis indicates only statistically significant AGE differences. There were some numerical differences among variables, but they were not statistically significant. Considering the Omron classification scale and recommendations, the two intervention groups have different variations and distributions. This cross-sectional experimental study points out some hypothetical differences regarding the organization of two “Models” of summer outdoor activities, according to the practical course location on Gazivode Lake or Korinos Coast at the Aegean Sea.

**Keywords:** Male PE students, Outdoor Activities Course, Evaluation, Comparison.

**Field:** Social sciences

## 1. INTRODUCTION

This research delves deeply into the complex relationship between physical activity and health status, focusing on assessing body composition. Historically, body mass index (BMI), calculated from height and weight, has been the primary method in population-based studies for estimating body composition, as highlighted in the works of Zaccagni, Barbieri, and Gualdi-Russo (2014). Several innovative techniques for measuring body composition are in use in the pursuit of advanced understanding. These methods have shown considerable potential in clarifying the impact of physical activity on body composition and fat distribution, as by Purenović-Ivanović, T. et al. (2025); Stojanović, S. et al. (2021). The curriculum at the Faculty of Sport and Physical Education (FSPE) is comprehensive, integrating psychological aspects such as cognitive skills and personality traits alongside a broad spectrum of morphological, physical, and functional/physiological characteristics, as evidenced by Popović et al. (1988).

The role of physical education in promoting healthy lifestyles from an early age in Serbia is in scope, highlighting the efforts of schools and academic staff in fostering these habits among children, according to (Purenović-Ivanović et al., 2022).

### 1.1 Purpose

This study primarily aims to assess fundamental anthropometric parameters, body composition,

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and health status, which are crucial for academic success in sports and physical education studies. A cross-sectional study design evaluated these parameters in specific groups of male PE students. An additional objective is a comparative analysis to discern potential group differences and provide insights into particular segments' status based on the estimated results. This objective could also reveal potential shortcomings in the initial evaluation process at the entrance exams for PE studies, as pointed out by Popović et al. (1988).

## 2. MATERIALS AND METHODS

### 2.1. Sample

This study involved fifty-six (N=56) undergraduate male students from the FSPE in Leposavić, University of Pristine, enrolled in the study year. The first research elaboration was during the 2021/2022 academic year. In June 2022, measurements were realized during the Practical Lessons of the Outdoor Activity Course at Gazivode Lake in Kosovo—Model Gazovode-1 (n=28). The second course was realized in September (2024), at the Aegean Sea—Model Korinos-2, Greece (n=28).

### 2.2. Measure Instruments and Techniques

2.2.1. Age and Anthropometry: Anthropometric measurements were taken for both groups of male sub-samples using International Biological Program (IBP) standards with Martin's anthropometry (Weiner & Lourie, 1969).

Measurements included Body Height (BH) and Body Weight (BW) estimation in controlled conditions.

2.2.2. Body Composition Status: Parameters like Body Mass (Weight), BMI, Basal Metabolism Rate (RMR), Body Fat Percentage (BF%), and Visceral Fat Level (ViscF) were estimated using the Omron BF511 bioimpedance device (Omron Operating Manual, 2017).

2.2.3. Health Status: Following the study design, three Physiological parameters are used to interpret PE students' "functional status." Popović, R., Đurašković, R., Purenović-Ivanović, T. (2012). A set of cardiovascular risk factor measurements consisted of three measures: blood pressure (SYS, DIA, RHR) and waist circumference (W-C), which were used to estimate the actual health status of PES. Cardiovascular risk factors assessment used a digital tensiometer PRIZMA for systolic and diastolic blood pressure and resting heart rate. The study adhered to the Helsinki Declaration guidelines (WMA, 2002), with ethical approval from the Faculty's Representatives and verbal informed consent from participants.

### 2.3. Statistical Procedures

Data analysis realization was with the Agency for Multivariate Data Analysis's "Smart Line." The analysis included descriptive statistics (mean, standard deviation, range, Coefficient of variation, confidence interval), the Kolmogorov-Smirnov test for normality of distribution, multivariate (MANOVA), and discriminative (DISCRA) data analysis.

### 2.4. Program of Summer Outdoor Activities

The practical teaching on-site at the Center for Ecology and Development of Sports at Gazivode Lake involved various activities, including Mountaineering, Camp Life Basics, Rope Work, Water Rescue, Applied Swimming, Paddling, Rafting, and Theoretical Lectures. Teaching was conducted in small groups, focusing on immersive, all-day learning experiences – Gazivode-1 Model. According to (Popović et al., 2023), the Outdoor activities schedule, arranged as a Table, is available at (Popović & Miletić, 2023).

The second, the Korinos-2 Model, was conducted at the coast of the Aegean Sea, focusing on swimming in the pool and the open sea. The primary educational task was to achieve concentrated teaching, i.e., to provide students with all-day engagement with the program mentioned above. Future physical education teachers had the opportunity to acquire the presented knowledge and see the breadth of teaching in nature, practically shown to them through two types of organization Models of Outdoor activities at the different localities mentioned above.

## 3. RESULTS

This chapter interprets the results for basic anthropometry, body composition, and health status of male Physical Education Students (PES), according to Omron Healthcare (2017). The study presents data in various tables and focuses on "Model" differences in the abovementioned measures, calculating averages and analyzing Min-Max results alongside individual achievements of selected role model students within the groups.

The study emphasizes the significance of body composition analysis in evaluating baseline anthropometric status and the risks of diseases linked to abnormal body fat and physiological parameters

considered cardiovascular risk factors. Key findings are represented through tables, offering a clear view of the Age and basic anthropometric parameters, body composition, and health status of PE male students of both “Models.” This approach allows for a detailed group-based comparative analysis and insights into intra-group variances, elevating the scientific understanding of these parameters in a higher academic context. This section interprets male PE students’ estimated body composition and health status, referencing the Omron table, according to Omron Healthcare (2017, pp. 16-17).

The study presents data in various tables, showing 13 parameters divided into three segments of the Anthropological status of PES. The role model student selection within groups was according to the best-achieved results in most Body Composition and Health Status Parameters, with a particular scope of the ViscFat level (1) and Age affiliation (first and third study year of FSPE).

### 3.1 Age and Basic Anthropometry - Segment 1 (S1)

Table 1 presents baseline statistical parameters in Segment 1. In both AGE variables, the abnormality in the results distribution is significant in AgeM1 ( $p = .000$ ) in G-1 and K-2 ( $p = .025$ ). Similar results are in AgeY2 ( $p = .000$ ) in G1 and K2 ( $p = .046$ ). MANOVA and DISCRA analysis confirmed ( $p = .002$ ) that there is a difference and a clearly defined boundary between “Models” in Segment 1 (AGE).

The role model student (P.N.) belongs to the same generation and is 19 years old (232 AgeM), the youngest student within the Gazivode-1 Group. According to the Korinos-2 Group, the role model student (B.S.) belongs to the third study year and is 21 years old (259 AgeM). The Kolmogorov-Smirnov test indicates a lack of normality in both AGE variables.

**Table 1. Baseline statistics parameters of S1 in Male PES regarding “Models” (Gazivode-1/Korinos-2)**

• Age and Anthropometry – Segment 1 (N=56)									
Variables	Group	Mean±SD	Min – Max	Range		Co.var.%	Sk	Ku	p
(1) AgeM1	G-1	271.64±65.46	232.0 – 468.0	246.25	297.03	24.10	1.96	2.44	.000
	K-2	246.32±38.40	235.0 – 435.0	249.43	279.21	14.53	3.30	12.19	.025
(2) AgeY2	G-1	22.21±5.48	19.0 – 39.0	246.25-	297.03	24.67	1.98	2.57	.000
	K-2	21.93±3.15	20.0 – 36.0	20.71	23.15	14.36	3.36	12.48	.046
(3) BH (cm)	G-1	184.25±7.63	172.0 – 199.5	181.29	187.21	4.14	.32	-.79	.674
	K-2	183.63±7.84	168.0 – 199.5	180.58	186.67	4.27	.01	-.66	.907
(4) BW (kg)	G-1	83.13±10.23	62.2 – 102.9	79.16	87.09	12.31	.05	-.58	.990
	K-2	85.70±17.81	52.1 – 130.0	78.79	92.61	20.79	.71	.40	.364

**Legend:** G-1/Gazivode Model, K-2/Korinos Model, Mean–Average value, SD–Standard deviation, Min–Max–values, Range – confidence interval, Co.var%–Coefficient of variation, Sk–Skewness, Ku–Kurtosis, p probability; AgeM1–Age/Month, AgeY2–Age/Years, BH - Body Height, BW–Body Weight, \*absence of normal distribution (level  $p < 0.05$ )

Source: Authors research

**Tabela 2. Significance of the difference between Models: Segment 1 about the applied DISCRA analysis**

Analysis of differences	n	F	p	Segment 1	F	p	C.disc
MANOVA	2	6.499	.002	AgeM1	.261	.612	.259
DISCRA	2	6.768	.002	AgeY2	.057	.812	.255

Source: Authors research

Based on the values of  $p = .002$  (MANOVA) and  $p = .002$  (DISCRA) analysis, there is a difference and a clearly defined boundary between “Models” at Segment 1 (AGE). The Coefficient of discrimination indicates that variables in Segment 1 contribute most significantly to between-model discrimination: the difference is the biggest at AgeM1 (.259) and AgeY2 (.255). Regarding Anthropometry, Table 1 presents Body Height (in cm) and Body Weight (in kg). The statistically significant differences in the normality of the results distributions were not established. The distribution of results within the four classification levels is presented below in Tables 3 and 4. Role model students recorded a BH of 199.5 cm, which fell to the ++ (very high) Classification level. Regarding PES’s body weight (kg), role model students recorded 70.0 kg, in the below average zone.

Table 3. Body Height (BH) distribution				Table 4. Body Weight (BW) distribution			
BH (cm)	Level	Gazivode-1	Korinos-2	BW (kg)	Level	Gazivode-1	Korinos-2
168-175	- (low)	4/28 (14.28%)	4/28 (14.28%)	52-70	- (low)	4/28 (14.28%)	3/28 (10.71%)
176-183	0 (medium)	12/28 (42.86%)	12/28 (42.86%)	71-85	0 (medium)	12/28 (42.86%)	14/28 (50.0%)
184-191	+ (high)	6/28 (21.43%)	8/28 (28.57%)	86-100	+ (high)	11/28 (39.28%)	6/28 (21.43%)
192-200	++ (very high)	6/28 (21.43%)	4/28 (14.28%)	101-130	++ (very high)	1/28 (3.57%)	5/28 (17.86%)

Source: Authors research

### 3.2. Body Composition Status – Segment 2

The study analyzed Body Composition Status among Physical Education Students (PES), using the Omron BF511 system to evaluate Body Mass Index (BMI) and Body Fat Percentage (BF%), Relative Skeletal Muscle Mass (SkM%), Resting Metabolism Rate (RMR), and Visceral Fat (ViscF).

**Table 5. Baseline statistics parameters of S2 in Male PES regarding “Models” (Gazivode-1/Korinos-2)**

• Body composition – Segment 2 (N=56)									
Variables	Model	Mean±SD	Min – Max	Range		Co.var.%	Sk	Ku	p
(5) BMI (kg/m <sup>2</sup> )	G-1	24.53±3.02	18.2 – 31.9	23.36	25.70	12.31	.21	.14	.943
	K-2	25.27±4.11	18.5 – 33.5	23.68	26.87	16.25	.41	-.72	.682
(6) BF%	G-1	19.45±6.44	7.5 – 33.7	16.95	21.95	33.11	.36	-.33	.904
	K-2	20.92±7.82	7.5– 37.1	17.89	23.95	37.37	.27	-.91	.710
(7) SkM%	G-1	39.60±3.98	31.3 – 45.7	38.06	41.15	10.04	-.38	-.67	.990
	K-2	38.85±5.22	26.1– 47.4	36.83	40.88	13.44	-.57	-.35	.994
(8) RMR (kCal)	G-1	1748.04±369.02	1408.0–2074.0	1604.91	1891.16	21.11	-.94	16.29	.167
	K-2	1856.39±226.66	1415.0– 2414.0	1768.48	1944.31	12.21	.62	.45	.624
(9) ViscF (level)	G-1	7.25±3.53	1.0 - 18.0	6.44	10.93	48.69	.50	23.03	.807
	K-2	6.71±3.51	1.0 – 13.0	5.36	8.07	52.20	.25	-.15	.842

**Legend:** G-1/Gazivode Model, K-2/Korinos Model, **Mean**–Average value, **SD**–Standard deviation, **Min–Max**–values, **Range** – confidence interval, **Co.var.%**–Coefficient of variation, **Sk-Skewness**, **Ku-Kurtosis**, p probability; **BMI** – body mass index, **BF%** - Relative Body Fat, **SkM%** - Relative Skeletal Muscle Mass, **RMR** – resting metabolism rate, **ViscF** – Visceral Fat, \*absence of normal distribution (level p<0.05)

Source: Authors research

3.2.1 Body Mass Index (BMI). In the current study of PE Students, Body Mass Index (BMI) was evaluated using the ratio of weight (kg) to squared height (m<sup>2</sup>). Based on the Omron BF511 system, this assessment helps determine the risk of disease-related fat levels, though it does not measure all fat types. Table 5 displays BMI results for both educational Models of male PE Students. The minimum BMI recorded was 18.2 for the Gazivode-1 group, aligning with the role model student. The average BMI value of 24.53 kg/m<sup>2</sup> for G-1 and 25.27 kg/m<sup>2</sup> for K-2 are within the normal obesity range. In the G-1, 13/28 (46.43%) students have BMI values in the standard obesity zone, but with a maximum of 31.9 kg/m<sup>2</sup>, and 2/28 (7.14%) students are in the (++) obesity) zone, indicating increased health risk. (Table 6). Regarding the K-2, the minimum BMI recorded was 18.5, aligning with the role model student. In the K-2 Group, 14/28 (50.00%) respondents have standard BMI values in the (normal obesity zone, and 9/28 (32.14%) respondents are in the + (pre-obesity) zone. However, a Maximum of 33.5 kg/m<sup>2</sup> in 4/28 (14.28%) respondents are in the very high obesity zone, indicating increased health risk. Role models are within the low obesity zone (18.2; 18.5).

**Table 6. Classification levels and determinants for the Body Mass Index (BMI) evaluation (WHO, 2002)**

BMI (kg/m <sup>2</sup> )	BMI determinants	BMI value	Gazivode-1	Korinos-2
less than 18.5	- (low obesity)	7.0 – 10.7	-	-
	- (low obesity)	10.8 – 14.5	-	-
	- (low obesity)	14.6 – 18.4	1/28 (3.57%)	-
18.5 or more, and less than 25	0 (normal obesity)	18.5 – 20.5		1/28 (3.57%)
	0 (normal obesity)	20.6 – 22.7		
	0 (normal obesity)	22.8 – 24.9	13/28 (46.43%)	14/28 (50.00%)
25 or more, and less than 30	+ (pre-obesity)	25.0 – 26.5		
	+ (pre-obesity)	26.6 – 28.2		
	+ (pre-obesity)	28.3 – 29.9	12/28 (42.86%)	9/28 (32.14%)
30 or more	++ (obesity)	30.0 – 34.9		4/28 (14.28%)
	++ (obesity)	35.0 – 39.9	-	-
	++ (obesity)	40.0 – 90.0	2/28 (7.14%)	-

Source: Authors research

3.2.2. Relative Body Fat (BF%). Regarding BF%, the study used Bio-Impedance analysis to estimate the percentage of body fat mass relative to total body weight. This measurement helps distinguish between visceral fat, associated with health risks, and subcutaneous fat, which affects body proportions but is not directly related to disease risk.

The results in Table 7 revealed a wide variance among male students, indicating greater diversity regarding this parameter of the body composition in the Gazivode-1 group. In the Korinos-2 group, male PE students displayed similar homogeneity within the low and normal zones. The maximum BF% for males was significantly higher, reaching the “very high” category (35.71%). At the same time, the profile model for both groups indicated lower levels of body fat, aligning with the “low” zone.

**Table 7. Body Fat% Classification Scale in Male PE students adapted to (Omron Healthcare, 2017)**

Body Fat%	- (low)	0 (normal)	+ (high)	++ (very high)
Age (18 – 39)	<8.0 %	8.0 - 19.9 %	20.0 - 24.9 %	≥ 25.0 %
Model	Abs. (f) / Rel. (%)	abs. (f) / rel. (%)	abs. (f) / rel. (%)	abs. (f) / rel. (%)
Gazivode-1	1/28 (3.57%)	14/28 (50.00%)	8/28 (28.57%)	6/28 (21.43%)
Korinos-2	1/28 (3.57%)	13/28 (46.43%)	4/28 (14.28%)	10/28 (35.71%)

Source: Authors research

3.2.3. Relative skeletal muscle mass (SkM%). Skeletal muscle mass percentage (SkM%) in male PE Students, crucial for energy efficiency and lifestyle vitality, was assessed and is shown in Table 5, Segment 2. The study found no significant difference between the two intervention groups. They showed a broad range of relative SkM% within four classification levels (Table 6). The Role model student had an average of 39.6% in G-1, falling into the + (high) zone, and a MAX value of 45.7%, falling into the ++ (very high) zone. Notably, 57.14% of male PESs exceeded the average of relative SkM% values. Conversely, the Korinos-2 intervention Model of male PES demonstrated higher homogeneity in SkM%, with most results clustering within two middle classes. The MAX and role model values distribution for K-1 male PES were in the ++ (very high) zone. In contrast, their MIN (26.1%) and average values (38.85%) are in the low and standard range, according to Omron Healthcare’s classification (2017). This data underscores the model-based differences in relative skeletal muscle composition among active PE students. According to the Skeletal Muscle Mass Percentage Classification of Results in males, the role model value of (45.7%) BF% belongs to the ++ (very high) zone (Table 8).

**Table 8. Skeletal Muscle Mass Percentage Classification of Results (Omron 2017, classification scale)**

“Model”	Scale	- (low)	0 (normal)	+ (high)	++ (very high)
<b>Age (18-39)</b>	<b>N=56</b>	<b>&lt; 33.3%</b>	<b>33.3-39.3%</b>	<b>39.4 – 44.0%</b>	<b>&gt; 44.1%</b>
Gazivode-1	Abs/Rel. <u>frq.</u>	3/28 (10.71%)	9/28 (32.14%)	12/28 (42.86%)	4/28 (14.28%)
Korinos-2	Abs/Rel. <u>frq.</u>	4/28 (14.28%)	10/28 (35.71%)	9/28 (32.14%)	5/28 (17.86%)

Source: Authors research

3.2.4. Resting Metabolism Rate (RMR). Table 9 illustrates (RMR) in (kcal) for both groups of PE Students. RMR values in Gazivode-1 varied moderately, distributed across three classes (low, standard, high) with a confidence interval of 286 kcal. The role model in the G-1 Group recorded a value of 1633 kCal in the low zone. These findings underscore distinct Model-based differences in metabolic rates among physically active PE students (Table 9).

**Table 9. Resting Metabolism Rate Classification – arranged by the authors**

RMR/kCal	Age (years)	- (low)	0 (standard)	+ (high)	++ (very high)
<b>Model</b>	<b>18-39</b>	<b>&lt;1821</b>	<b>1821-1960</b>	<b>1961-2100</b>	<b>&gt;2100</b>
<b>Gazivode-1</b>	<b>Abs. (f) / Rel. (%)</b>	16/28 (57.14%)	8/28 (28.57%)	4/28 (14.28%)	(-)
<b>Korinos-2</b>		12/28 (42.86%)	10/28 (35.71%)	2/28 (7.14%)	4/28 (14.28%)

Source: Authors research

3.2.5. Visceral Fat Levels (ViscF). The distribution of results in male PES was according to the adopted Omron classification scale (Table 10) to provide insight into possible significant differences between the two intervention groups of male PES regarding the “Model.” ViscF levels in the G-1 group show significant within-group differences, with most results falling within the standard classification level. In contrast, PES in the K-2 group displays more heterogeneity, indicating a broad range of 12 levels, underscoring the diversity in this parameter. This variability highlights the complex interplay of genetic, environmental, and lifestyle factors influencing PES’s body composition and health status. In the profile model, students in both groups have a low level (1).

**Table 10. Visceral fat level classification (Omron Healthcare, 2017)**

Visceral fat level	Classification level	Gazivode-1 (N = 28)	Korinos (N = 28)
1 - 4	- (low)	11/28 (39.28%)	9/28 (32.14%)
5 - 9	0 (normal)	15/28 (53.57 %)	10/28 (35.71%)
10 - 14	+ (high)	2/28 (7.14%)	(9/28 (32.14%)
15 - 30	++ (very high)	(-)	(-)

Source: Authors research

Body composition results, excluding ViscF level, exhibited expected intra-group variations, suggesting influences of genetic factors, environmental conditions, and lifestyle choices. Low percentages of higher body fat (BF%) and skeletal muscle mass (SkM%) imply heterogeneity in the student population, potentially stemming from varied sports orientation, physical activity levels, nutritional habits, and FSPE entry criteria. This information suggests that FSPE enrollment criteria might be more inclusive, accommodating general population individuals and non-athletes (Purenović-Ivanaović et al., 2013).

### 3.3. Health Status – Segment 3

The study’s design involved closely monitoring physiological parameters to assess the ‘functional status’ of male PES. Key cardiovascular risk factors measured included Systolic and Diastolic Blood Pressure (BP) parameters, Resting Heart Rate (PULSE), and waist circumference (W-C).

**Table 11. Baseline statistics parameters of S3 in Male PES regarding “Models” (Gazivode-1/Korinos-2)**

• Health status – Segment 3 (N=56)									
Variables	Groups	Mean±SD	Min – Max	Range		Co.var.%	Sk	Ku	p
(10) SYS (mmHg)	G-1	129.54±30.56	90.0 – 211.0	117.68	141.39	23.59	-1.53	8.33	.094
	K-2	133.04±13.71	102.0 – 170.0	127.72	138.35	10.31	.17	.71	.861
(11) DIA (mmHg)	G-1	76.36±17.97	54.0 – 136.0	69.39	83.33	23.53	1.80	3.25	.176
	K-2	75.75±11.86	52.0 - 99.0	71.15	80.35	15.66	-.20	-.60	.969
(12) RHR (bpm)	G-1	76.36±17.97	54.0 – 136.0	69.39	83.33	23.53	1.80	3.25	.176
	K-2	75.75±11.86	52.0 - 99.0	71.15	80.35	15.66	-.20	-.60	.969
(13) W-C (cm)	G-1	85.36±9.48	62.0 – 102.0	81.68	89.03	11.10	-.33	-.11	.657
	K-2	88.57±11.99	67.0 – 113.0	83.92	93.22	13.53	.36	-.41	.620

**Legend:** G-1/Gazivode Model, K-2/Korinos Model, **Mean**–Average value, **SD**–Standard deviation, **Min–Max**–values, **Range** – confidence interval, **Co.var%**–Coefficient of variation, **Sk–Skeewnes**, **Ku–Kurtosis**, p probability; **SYS**–Blood Pressure, **DIA**–Blood Pressure, **RHR**–resting heart rate, **bpm**–beep/per minute, **W-C** - Waist Circumference, \*absence of normal distribution (level p<0.05)

Source: Authors research

Resting Heart Rate (RHR), a vital parameter in sports medicine, is efficiently measured in various states: at rest, during exercise, and in recovery phases. It provides direct insights into cardiovascular efficiency.

Blood Pressure (BP), comprising Systolic (SYSBP) and Diastolic (DIABP), is crucial for evaluating cardiovascular function and measuring the force exerted by circulating blood on arterial walls.

These measurements are pivotal in identifying potential cardiovascular anomalies, such as arrhythmias characterized by irregular heart rhythms (Table 11, Segment 3).

In the education G-1 group, male PES exhibited a lower range of average RHR (76.36 bpm), with diverse results ranging from bradycardia (17.86%) to tachycardia (3.57%). The role model indicated an RHR of 84 beats/min.

In the intervention K-2, male PES exhibited a standard range of mean RHR (75.75 bpm), with diverse results ranging from normotension (67.86%) to tachycardia (3.57%). This variation demonstrates a broad spectrum of cardiovascular responses, from well-trained athletic conditions to potential arrhythmias, reflecting the diverse fitness levels within the Group.

The role model indicated an RHR of 73 beats/min, aligning with higher cardiovascular exertion. This notice may be about past athletic involvement or reduced physical activity levels. The presence of bradycardia in an athletic student highlights the common phenomenon of “sports heart” among athletes, particularly in endurance sports (Doyen et al., 2019; Bahrain et al., 2016).

Bradycardia and tachycardia among the student population indicate “sports heart,” a condition arising from long-term athletic training (Prior & La Gerche, 2012).

However, the variation in RHR could reflect transient states such as emotional stress, dehydration, or even measurement inaccuracies (Padwal et al., 2001) rather than solely indicating cardiovascular fitness. This fact underscores the sensitivity of RHR as a parameter and its variability based on numerous influencing factors (Popović et al., 2020; Purenović-Ivanović et al., 2022).

The study adhered to WHO’s (2002) standards for blood pressure assessment, ensuring a comprehensive evaluation regardless of different “Models” of the Summer Outdoor Educational Settings (Table 13).

**Table 12. Waist Circumference (W-C) distribution within four Classification levels – Age (18-39)**

W-C (cm)	Classification	- (low)	0 (medium)	+ (high)	++ (very high)
Model	Levels	80-93	94-107	108-121	122-135
Gazivode-1	Abs. (f) / Rel. (%)	23/28 (82.14%)	5/28 (17.86%)	(-)	(-)
Korinos-2		19/28 (67.86%)	7/28 (25.00%)	2/28 (7.14%)	(-)

Source: Authors research

**Table 13. Functional/Health Status Classification –arranged by the authors**

Health status / Age 18-39	Models	Systolic BP (f%)	DIA-BP (f%)	RHR/bpm
<b>Low (hypotension)</b>		≤ 90	< 60	< 60
	G-1	(-)	2/28 (7.14%)	5/28 (17.86%)
	K-2	(-)	4/28 (14.28%)	(-)
<b>Normal (normotension)</b>		≤91-120	≤ 61-80	60 - 80
	G-1	4/28 (14.28%)	20/28 (71.43%)	10/28 (35.71%)
	K-2	5/28 (17.86%)	12/28 (42.86%)	19/28 (67.86%)
<b>Elevated</b>		121 – 129	81 – 89	81 - 100
	G-1	11/28 (39.28%)	3/28 (10.71%)	12/28 (42.86%)
	K-2	5/28 (17.86%)	10/28 (35.71%)	8/28 (28.57%)
<b>Low (hypertension, stage 1)</b>		130 – 139	90 – 99	> 100
	G-1	5 /28 (17.86%)	1/28 (3.57%)	1/28 (3.57%)
	K-2	11/28 (39.28%)	2/28 (7.14%)	1/28 (3.57%)
<b>Moderate (hypertension, stage 2)</b>		140 – 159	100–119	
	G-1	4/28 (14.28%)	2/28 (7.14%)	
	K-2	6/28 (21.43%)	(-)	
<b>High (hypertension, stage 3)</b>		≥ 160	≥ 120	
	G-1	3/28 (10.71%)	(-)	
	K-2	1/28 (3.57%)	(-)	

Source: Authors research

#### 4. DISCUSSION

Our study revealed heterogeneity in Age, with a significant age range indicating varied generational affiliations. In body height (BH), male students showed a broad range and notable variability. Body weight (BW) findings for male students indicated substantial variability, with a significant percentage showing above-average weights.

The study also underlined the genetic and environmental influences on body composition, notably in BMI. Both Groups exhibited a balanced distribution of BMI, with only the maximum values indicating obesity. The role model's BMI was notably lower, falling into the low obesity category per the OMRON scale. These findings offer insightful implications for sports and physical education students' physical development and health status. This discussion explores BMI and body composition variations among FSPE students. Comparative global data reveal that over 50% of subjects of both sexes have standard BMI values, with a smaller percentage classified as overweight (WHO, 2002). Notably, non-athletes tend to be more overweight than athletes (Bubanj et al., 2013; Malina et al., 2011). Body fat estimations in male PE students vary based on measurement methods, suggesting a need for methodological consistency. Relative body fat (BF%) analysis shows significant variations within the Groups, with a substantial portion classified in the very high zone of BF%. The situation differs regarding relative skeletal muscle mass (Sk%). Gazovode-1 Group exhibits a more homogeneous skeletal muscle mass distribution than the K-2 Group of males, indicating a variance in physical fitness and nutritional status (Bubanj et al., 2013; Popović, Popović, Popović, 2020). Visceral fat levels in males show only significant within-group differences, with most results falling within the normal classification range (Omron Healthcare, 2017).

Basal metabolism rate (RMR) results in male PES also indicate a broad range, underscoring the diversity in this physiological parameter. This variability highlights the complex interplay of genetic, environmental, and lifestyle factors influencing body composition and health status in FSPE students. Adolescent assessment of Resting Metabolic Rate (RMR) presents challenges. The current study found that male students' mean RMR slightly exceeds expected values for their Age, aligning with Bubanj et al. (2013) and Popović et al. (2024).

## 5. CONCLUSIONS

This study has a cross-sectional, experimental design focused on PE students in their first and third study years during their compulsory Summer Outdoor Activities courses at Gazivode Lake (G-1) and the Aegean Sea, Korinos (K-2). The primary objective was to analyze selected parameters of male Anthropological Status and explore Model-related differences across parameters within three segments. Key findings include Age and Anthropometry: The Kolmogorov-Smirnov test analysis revealed a non-homogeneous AGE distribution among male PES, indicating a lack of normalcy in age-related results. Body Composition was assessed using bioimpedance devices. Only numerical “Model” differences were observed in all parameters. Health Status with Cardiorespiratory risk factors, including Systolic and Diastolic Blood Pressure, Resting Heart Rate, and Waist Circumference, were found to be normally distributed, with no significant “Model” differences identified. The study underscores the necessity of contextualizing findings within the specific demographic of the first- and third-year PE Students at the University of Pristine, emphasizing that generalizations should be cautiously applied only to similar cohorts.

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# SEARCHING FOR IDENTITY IN FEMALE CHARACTERS IN WILLIAM SHAKESPEARE'S COMEDIES

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**Abstract:** This paper explores the complex questions of identity in female characters in William Shakespeare's comedies, focusing on *As You Like It*, *Twelfth Night*, and *The Taming of the Shrew*. Through an analysis of transformation, disguise, and resistance to patriarchal structures, the study reveals how female characters actively construct their identities, often disrupting dominant gender hierarchies. The research applies feminist and psychoanalytic criticism to analyze the roles of gender, performance, and language in the process of identification and self-discovery, positioning these characters as agents of their own liberation. Focusing on Rosalind in *As You Like It*, Katherina in *The Taming of the Shrew*, and Viola in *Twelfth Night*, it argues that Shakespeare crafts their identities through linguistic performance, ambiguity, and rhetorical control. These women subvert conventional gender norms not just through disguise or defiance, but through speech acts that constitute identity. The essay adopts a feminist and performative framework, particularly Judith Butler's concept of performativity, to analyze how language enables these characters to negotiate, redefine, and assert their subjectivities in a patriarchal context.

**Keywords:** *identity, female characters, language, comedies.*

**Field:** Humanities

## 1. INTRODUCTION

In the late Renaissance, female identity in literature was predominantly defined through a woman's relation to a man—as daughter, wife, or lover. However, Shakespeare's comedies offer a space for re-examining these roles. The female characters are not only active participants in the development of the narrative but often challenge the status quo through disguise, dialogue, and subversion. At the core of these plays lies the struggle for self-definition, where the search for identity emerges as a fundamental motif.

Shakespeare's comedies are often perceived as tales of romance, disguise, and humor. Yet they also provide fertile ground for examining identity, especially in female characters who contest, displace, or transform socially assigned gender roles. Through the active use of disguise, ambiguity in speech, and play with social norms, these characters create space for reflection and redefinition of the self. This paper analyzes these aspects through an interdisciplinary lens, incorporating feminist theory, cultural criticism, and performance analysis. In Shakespeare's comedic world, where inversion, misrecognition, and disguise often structure the plot, language emerges not only as a means of communication but as the medium through which identity is constructed and challenged. For female characters, whose identities are socially and culturally constrained by early modern gender norms, language becomes a subversive tool—allowing them to exert power, articulate desire, and perform autonomy. In *As You Like It*, *Twelfth Night*, and *The Taming of the Shrew*, Rosalind, Viola, and Katherina respectively use language to shape their identities, reframe their positions within male-dominated spaces, and expose the instability of gender itself.

## 2. GENDER PERFORMATIVITY AND DISGUISE: ROSALIND AND VIOLA

Rosalind (*As You Like It*) and Viola (*Twelfth Night*) are characterized by remarkable intelligence, courage, and adaptability. Their disguises as male figures not only enable them to survive but also allow them to explore new dimensions of their own identities. Disguise allows Rosalind and Viola to establish relationships that transcend traditional gender boundaries. Viola, for example, forms an intimate bond with Orsino precisely because of her male disguise, while Rosalind teaches Orlando how to love. Identity here is dynamic, shaped through dialogue and reinterpretation.

In *As You Like It* and *Twelfth Night*, Shakespeare crafts female characters who transform into male figures—an act that shifts their role from passive objects of romantic desire to active agents of communication and action. Rosalind, as Ganymede, forges an intimate connection with Orlando, using her male disguise not only for protection but also as a tool for internal discovery. Viola, as Cesario,

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utilizes her transgressive identity to enter a love triangle that highlights the complexity of love, gender, and perception.

As Butler (1990) argues, gender is not an essential category but a construct maintained through performative practices—socially learned and repeated acts. Shakespeare's heroines challenge the binary of male/female through such performances, raising the question: What does it mean to be a woman?

They instinctively embody this theory through their ability to control the narrative by shifting the gender code. Disguise enables not only physical mobility but also subjective authority.

### 3. LANGUAGE AND THE METAPHOR OF IDENTITY

Shakespeare's female characters are not merely actors in the plot but masters of language. Rosalind in *As You Like It* has more lines than any other character in the play, representing a form of verbal dominance. She shapes the narrative of love on her own terms, using language as a means to command space and situation. Rosalind is one of the most verbally active characters in all of Shakespeare's works, which is especially significant given the relative silence of most female characters of the time. Her language is agile, ironic, and manipulative—a tool through which she shapes reality and constructs her identity.

Similarly, Viola expresses deep empathy and emotional intelligence through language. With witty and ambiguous lines, she creates her position as the moral and emotional center of *Twelfth Night*. In a situation of bodily uncertainty—where her appearance does not align with her gendered truth—language becomes the primary means through which she asserts her identity.

In these contexts, language becomes a medium for negotiating gender and subjectivity. According to Greenblatt (2005), Shakespeare's use of language serves both to reveal and conceal truths about identity.

Rosalind is perhaps Shakespeare's most linguistically empowered female character. In *As You Like It*, she not only speaks more lines than any other character but also uses her words to actively construct her identity. Disguised as the male Ganymede, she navigates the Forest of Arden with rhetorical agility, creating a performative space where she can experiment with desire, gender, and agency.

Her dialogues with Orlando serve as both romantic instruction and identity play. By adopting a male persona, she ironically gains the authority to define what it means to be a woman in love. As Ganymede, she parodies gender roles and courtship rituals, destabilizing fixed binaries. According to Butler (1990), gender is performative, not inherent—a concept Rosalind enacts by treating masculinity as a role she can inhabit and abandon. Her wit, irony, and verbal dexterity allow her to construct a layered identity that is at once sincere and ironic, masked and authentic.

Language thus functions as both her disguise and her revelation. Through it, she reclaims authorship over her narrative, using speech as a metaphorical mask that both conceals and reveals.

Viola's journey in *Twelfth Night* similarly underscores the centrality of language to identity. After being shipwrecked and assuming the identity of Cesario, she enters Duke Orsino's court and quickly establishes herself as a sensitive and eloquent interlocutor. Her speech is marked by emotional intelligence and rhetorical precision, enabling her to influence those around her even while hiding her true self.

Viola's dual identity—female by biology, male by disguise—positions her at the intersection of gendered expectations. Her ability to speak intimately with Orsino, while being perceived as a man, challenges traditional courtship dynamics. In her famous speech about her "sister" (Act 2, Scene 4), she uses metaphor to veil and simultaneously expose her feelings. This act of veiled confession exemplifies how language allows her to navigate her ambiguous position without sacrificing her integrity or emotional truth.

Language for Viola is both a shield and a bridge—a metaphorical fabric that clothes her unspoken identity. Her verbal agility reflects her inner complexity, illustrating how Shakespeare crafts identity not through fixed traits but through dialogic interactions.

In *The Taming of the Shrew*, Katherina's relationship to language is more confrontational but equally transformative. Initially characterized by sharpness, sarcasm, and aggression, her speech marks her as unruly and undesirable in the patriarchal marriage market. However, it is precisely her refusal to conform to the expectations of feminine silence and obedience that gives her power.

Her verbal sparring with Petruchio is not just a battle of wills but a performative struggle over identity. Language becomes the site where her subjectivity is both challenged and asserted. While many interpret her final speech as a capitulation to male dominance, a closer reading—especially through a contemporary feminist lens—suggests a more ironic performance. The tone and delivery of her monologue can be seen as theatrical compliance, a strategic use of language to satisfy social expectation while retaining personal agency.

As Charnes (2021) and Smith (2022) argue, Katherina's "submission" is best read as rhetorical camouflage: she learns to manipulate the same language that was used to silence her. In doing so, she reclaims control, embodying resistance through performance.

Across all three comedies, Shakespeare crafts female characters whose speech functions metaphorically as the site and symbol of their identity. Whether through the verbal play of Rosalind, the emotional resonance of Viola, or the strategic irony of Katherina, language is never neutral. It is performative, transformative, and deeply tied to the self.

Stephen Greenblatt (2005) notes that Shakespeare's characters often construct themselves through their words, revealing not just personality but existential orientation. For female characters, who are already marginalized within the social order of the plays, this self-construction becomes a radical act. Language allows them to exceed their prescribed roles and participate in the shaping of their own narratives.

#### **4. RESISTANCE AND STRATEGIC SUBMISSIVENESS: KATHERINA AND THE AMBIVALENCE OF "TAMING"**

The *Taming of the Shrew* is a complex play often interpreted as misogynistic. However, from a contemporary feminist perspective, Katherina can be seen as a woman who understands the context in which she lives and uses the performance of submission as a means of survival. According to recent studies (Charnes, 2021; Callaghan, 2023), Katherina's "taming" can be understood as a conscious play with expectations—she remains a subject within the imposed structure.

In her final monologue, Katherina formally expresses submission, but the way she delivers the speech—with an ironic tone and theatrical distance—suggests a deliberate play with power. In doing so, she retains her inner integrity, which is a key moment in the stabilization of her identity.

Katherina has long been interpreted as a victim of patriarchal order. However, newer critiques consider her transformation as a conscious strategy of survival and adaptation. As some authors suggest (Smith, 2022; Tomlinson, 2021), Katherina is not truly "tamed," but chooses to play the role tactically in a world where her power is denied.

Her final speech can also be read as a sarcastic parody of submission, rather than a sincere acceptance of patriarchal authority. Thus, Katherina reinterprets the female role in marriage not as passive but as active—even subversive.

#### **5. CONCLUSION**

The female characters in Shakespeare's comedies are far from passive figures in a male world. They are active participants in their own self-construction, using disguise, language, and resistance as strategies of identity formation. In their search for selfhood, they transcend the boundaries of gender stereotypes and demonstrate literature's potential to be a space of freedom and experimentation. Shakespeare, with his subtlety and sensitivity to the complexity of human nature, creates characters that remain relevant in contemporary discussions of identity and gender. Shakespeare's comedies offer more than romantic entanglements and mistaken identities—they are sophisticated meditations on the role of language in shaping who we are. Through Rosalind, Viola, and Katherina, we see how women use language not merely to speak but to become. In a world where silence equates to submission, these characters reclaim voice as identity, metaphor as liberation. Their words are not only their weapons but their essence—demonstrating how, in Shakespeare's hands, language is both mask and mirror of the self. Shakespeare's female comedic characters represent complex subjects whose search for identity exceeds the gendered, social, and cultural constraints of their time. Through performativity, linguistic skill, and critical engagement with power, they become prototypes of female subjectivity and autonomy. These characters not only reflect the societal discourse of Shakespeare's era but also reshape it. Their stories challenge us to rethink what it means to be a woman, a subject, and a human being within the historical and literary context.

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# EUROPEAN DEVELOPMENT FUNDS IN THE ECONOMY OF NORTH MACEDONIA (2021–2027)

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**Abstract:** This paper examines the role and impact of European Union funding instruments—IPA III, Horizon Europe, and Erasmus+—on the economic development of North Macedonia. As a small economy with limited domestic investment and structural challenges, North Macedonia relies heavily on external assistance to advance its competitiveness, innovation capacity, infrastructure, and human capital. The study outlines how EU funds support national programs in areas such as education, research and development, transport, energy, and governance reform. Through specific funding mechanisms, the EU facilitates economic modernization, academic-business collaboration, youth mobility, and administrative reform. Despite these benefits, the paper highlights several obstacles, including weak administrative capacity, insufficient co-financing, political instability, and the need for stronger rule of law reforms. The analysis concludes that while EU support is critical to North Macedonia’s development, its effective utilization depends on the country’s ability to improve institutional readiness and long-term strategic planning.

**Keywords:** *European funding instruments, economic development, business collaboration, investments.*

**Field:** Social sciences

## 1. INTRODUCTION

North Macedonia is a small economy with limited domestic investment and high unemployment rates. According to reports, the country ranks below the EU average in competitiveness and innovation [portal.mdt.gov.mk], and GDP per capita (in purchasing power standards) is about 38% of the EU average [portal.mdt.gov.mk]. The EU is the largest donor for development and reforms in North Macedonia through the Instrument for Pre-Accession Assistance (IPA). In the 2021–2027 programming period, IPA III has a budget of €14.162 billion [enlargement.ec.europa.eu], with North Macedonia receiving approximately €265 million for national programs between 2021 and 2023 [enlargement.ec.europa.eu]. This financial package (including an €80 million energy package) is designed to support reforms and investments in key sectors, focusing on competitiveness, innovation, infrastructure, and human capital [cfcd.finance.gov.mk; enlargement.ec.europa.eu]. Additionally, the country has been fully associated with the “Horizon Europe” program since January 2021 [research-and-innovation.ec.europa.eu] and actively participates in “Erasmus+.”

## 2. INSTRUMENT FOR PRE-ACCESSION ASSISTANCE (IPA III)

IPA III aims to help candidate countries align their policies with EU standards. Official documents highlight one of the specific objectives as strengthening public administration and governance, as well as supporting economic and social development with particular emphasis on youth [cfcd.finance.gov.mk]. For North Macedonia, IPA funds finance several “program measures” in areas such as education quality, digitalization, economic development, transport, and the environment. For example, by early 2024, plans and programs worth over €200 million for 2024–2027 were adopted for infrastructure (road and rail), environment (wastewater, energy), and human capital (education and employment) [neighbourhood-enlargement.ec.europa.eu]. However, the preparation and management of these programs face organizational challenges. According to the EC, the institutional system managing IPA III was aligned with new requirements, but success is undermined by weak administrative capacity and staff instability [neighbourhood-enlargement.ec.europa.eu]. For instance, rapid staff turnover (an average outflow of 10% annually) and the lack of a national policy to retain experts hinder the effectiveness of management structures [neighbourhood-enlargement.ec.europa.eu]. This also affects the efficiency of IPA monitoring and reporting, which, according to audit reports, are often delayed due to weak interinstitutional coordination [neighbourhood-enlargement.ec.europa.eu].

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### 3. HORIZON EUROPE AND RESEARCH AND INNOVATION

North Macedonia has participated in “Horizon Europe” as an associated partner since 2021 [research-and-innovation.ec.europa.eu]. The program allows local researchers and companies to collaborate on European R&D projects. According to the latest EC report, in 2023, 17 projects from North Macedonia received approximately €3.4 million in funding [neighbourhood-enlargement.ec.europa.eu]. Although participation continues, funding was 30% lower than the previous year, indicating a challenge in maintaining a growth trend. Based on the European Innovation Scoreboard 2024, North Macedonia is ranked as an “emerging innovator” with 45.1% of the EU average score [neighbourhood-enlargement.ec.europa.eu], highlighting room for improvement. A positive initiative is the establishment of an “EIT RIS” center in 2024, promoting innovation projects and connecting academia and the business sector [neighbourhood-enlargement.ec.europa.eu]. The country’s efforts within Horizon Europe are increasing international cooperation in industries such as energy and health [research-and-innovation.ec.europa.eu] and creating conditions for greater competitiveness through technological development.

### 4. ERASMUS+ AND YOUTH PROGRAMS

Erasmus+ is essential for supporting youth mobility and skill development. According to the 2024 report, organizations from North Macedonia participated (as applicants or partners) in 828 projects under Erasmus+ and the European Solidarity Corps in 2023, with a total approved grant support of €7.05 million [neighbourhood-enlargement.ec.europa.eu]. Historically, from 2014 to 2020, more than 34,500 exchange activities (students, training, youth, sports) were conducted between North Macedonian and European organizations through Erasmus+ [enlargement.ec.europa.eu]. These programs contribute to increased knowledge, access to foreign markets, and higher youth employment. Additionally, the funds support inclusion (e.g., inclusion of the Roma community in educational programs) and cultural projects (Skopje was selected as the European Capital of Culture 2028).

### 5. IMPACT ON ECONOMIC DEVELOPMENT

European funds have a critical impact on several economic parameters in North Macedonia:

- **Competitiveness:** Financial support helps companies increase capacity and product quality. Support for implementing EU standardization and innovations (via IPA and Horizon) improves the competitiveness of the export sector. According to the EC, funds encourage micro-enterprises to adopt quality standards and circular economy practices [portal.mdt.gov.mk]. Furthermore, IPA finances agricultural programs that enhance integration into the EU common market and create product marketing systems, boosting competitiveness in the agricultural sector.

- **Innovation:** Horizon and IPA funds promote research and link academia with the business sector. For example, the Innovation Fund’s new program receives technical assistance for restructuring, and grants have been introduced to connect universities with industry [neighbourhood-enlargement.ec.europa.eu]. Young researchers participate in European projects, increasing scientific output and technology transfer. However, R&D investments remain low (0.38% of GDP in 2022) [neighbourhood-enlargement.ec.europa.eu], making European funds essential for knowledge and technology transfer.

- **Infrastructure:** EU funds support major infrastructure projects. North Macedonia is building or rehabilitating critical road and rail corridors. For example, over 10 projects are underway on Corridor X (road corridor to Greece) [neighbourhood-enlargement.ec.europa.eu]. The EU’s Western Balkans Investment Plan also finances projects like the express road Kriva Palanka–Stracin (Corridor VIII) and a railway line to Bulgaria [enlargement.ec.europa.eu]. In energy, the country is increasing wind farm capacity in Bogdanci [enlargement.ec.europa.eu], while a central wastewater treatment plant is being built in Skopje. These investments improve connectivity, energy stability, and business conditions nationwide.

- **Youth and Education:** Support for modernizing education improves human capital. Funds enhance pedagogy (e.g., new curricula and digital tools), 820 new educators supported by the EU were involved, and a National Youth Strategy 2023–2027 was adopted. A future driver of economic growth is the European Week of Sport project and the organization of European youth events. Overall, direct support for education (including scholarships) is increasing, and although the national budget still allocates about 3% of GDP to education [neighbourhood-enlargement.ec.europa.eu], joint projects with the EU expand opportunities for youth knowledge and mobility.

- **Administration and Governance:** IPA III significantly funds public administration reforms for better service delivery and transparency. Through “twinning” and technical assistance, state institutions

adopt modern EU practices: from digitalizing data management (national Population Register) to introducing electronic services. Projects to strengthen the judiciary and fight corruption (Chapter 23 of accession negotiations) improve the capacities of courts and anti-corruption bodies with IPA funding. This approach directly influences governance and legal frameworks, which in turn boosts investor and business community confidence.

## 6. CHALLENGES

North Macedonia still faces several challenges in accessing these funds:

- **Administrative Capacity:** As the EC notes, weak organizational readiness and frequent outflow of trained personnel hinder timely program implementation [neighbourhood-enlargement.ec.europa.eu]. The lack of a long-term strategy for human resource development in public administration (e.g., a plan to retain qualified staff) is a serious handicap. Although training centers were established to align with EU requirements, further improvement in coordination and local-level capacity is needed.

- **Co-financing and Planning:** Unlike EU member states with their own budgetary support, North Macedonia must secure national co-financing when implementing projects (usually 10–15%). Insufficient local funds and budget constraints can delay construction projects. Additionally, the absence of long-term national strategies (e.g., for smart specialization and innovation) sometimes results in missed opportunities for systematic use of European funds.

- **Political Instability:** Frequent changes in government and administrative structures can slow the continuity of reforms and fund utilization. As noted, strong political leadership is needed to increase access to programs [neighbourhood-enlargement.ec.europa.eu].

- **Demand for Reforms:** Programs like IPA require conditions related to the rule of law and anti-corruption efforts. North Macedonia must meet these requirements to secure funding. According to the EC, constant improvements in transparency and fair market conditions are necessary to justify European investments.

## 7. CONCLUSION

European funds from IPA III, Horizon Europe, and Erasmus+ provide significant impetus to North Macedonia's economic development. They enhance competitiveness through financing modernization and standardization of production, foster innovation through R&D projects and academic-business partnerships, and modernize infrastructure (transport, energy, environment). They also increase opportunities for youth through mobility and education, and strengthen administration through technical and expert support. However, realizing these benefits depends on how successfully North Macedonia overcomes challenges, primarily the lack of adequate administrative capacity and the complexity of procedures. With continued efforts in building administrative skills and strategic planning, the country can maximize the benefits of European funds.

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