



Ministry of Education and Science of Ukraine

Zhytomyr Polytechnic State University

Zhytomyr Medical Institute

Khmelnysky National University

“Current Trends in Young Scientists’ Research”

XI All Ukrainian Scientific and Practical Conference

Book of Papers

April 25, 2024



Zhytomyr

XI All Ukrainian Scientific and Practical Conference
“Current Trends in Young Scientists’ Research”

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Session work №1

CURRENT RESEARCH IN THE FIELD OF HUMANITIES

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GAMIFICATION FOR LEARNING: A STRATEGY FOR THE 21ST CENTURY LEARNER

It is generally accepted that the use of emergent technologies in education has evolved tremendously since the 21st century. For plenty of educators this has become a challenging task, most of all when 21st century learners fill the classrooms. But these digital natives differ tremendously from those who started the millennium. These students want to be challenged, engaged and motivated through a learning process, which connects them to a different learning experience. This has become a challenging task for educators due to the student profile and characteristics. Although to achieve the learning outcomes necessary for the 21st century, educators are adapting approaches suited for these learners, involving game theory, video games, and gamifying instruction.

As the 21st century moves forward, and technology continues to be an integral part of it, new pedagogical strategies have appeared. These strategies are developed based on the needs, the environment, and competences of the 21st century learner. This 21st century learner is called “digital native”. Many studies have shown that, a digital native learns and processes information different. They are described as living lives immersed in technology, “surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age” [2, p. 54].

We suggest that one of these new learning strategies is Gamification. It is basically new to education and has adjusted rapidly to the profile of the 21st century learner or digital native. Gamification in education let the instructor gamify an activity or a certain literacy skill. It integrates game elements and rewards mechanisms as part of the lecture, while motivating and engaging the student, and promoting healthy competition. The students learn a concept and practice skills just like if they were

playing in a game. This makes the educational experience challenging and fun and at the same time motivates the learner to move forward. The objective for integrating Gamification towards education is to unchain a more attractive and effective learning experience for the student.

Drawing on data selected from our research, our analysis has found that nowadays, more educators are using Gamification as part of their teaching strategies. This is due in part to the recognizing that games designed in an effective form stimulate large gains in productivity and creativity. In addition, Gamification has been successful in non-traditional educational settings such as E-learning. Gamification in education offers the learners an opportunity to interact among themselves as it's implied in a social game. Another detail is that when people perceive any form of social presence they tend to respond in a natural way to feelings such as happiness, empathy, and frustration, or even follow social rules like taking turns [3, p.32].

The general conclusion is that to have a successful Gamification teaching and learning experience, where the 21st century learner becomes engaged and motivated, the educator needs to plan accordingly. This requires that every instructor follow the five-step model for educational gamification, which is presented in the work of Huang and Soman [1, p.16].

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BILL CLINTON'S SPEECH "COVERING THE ENVIRONMENTAL BEAT: RESPONSIBILITIES AND CHALLENGES": PRAGMALINGUISTIC ASPECT

In recent years, researchers have become increasingly interested in public speaking. It is now generally accepted that public speaking is the process of speaking to a group of people in a structured, deliberate manner intended to inform, influence, or entertain the listeners [1, p 12]. An overview of the current literature suggests that public speaking can be a powerful tool to use for such purposes as motivation, influence, persuasion, delivering information, translation, or entertainment [3, p. 45].

An overview of the current literature suggests that a public informative speech is a speech that tells about certain events and processes, describes situations and problems. The success of a speech depends on the chosen topic and the depth of its presentation [2, p. 78]. The analyzed speech is devoted to the problem of the influence of mass media on the formation of public consciousness of mankind regarding environmental safety.

Characterizing Bill Clinton's speech "Covering the Environmental Beat: Responsibilities and Challenges" (1), it should be noted that this speech has a number of features related to both the compositional structure and the use of linguistic and stylistic means in it. The speech begins with an appeal to the audience, and the speaker uses such phrase: "*Ladies and Gentlemen*". In the introduction, to attract attention and set the audience up for further cooperation, the author of the speech skillfully cites facts that the environment plays an important role in people's lives, that it is the environment that helps people live, develop and exchange certain information: "...*The natural environment plays an important role in climate, flood and disease regulation. It also contributes to the cultural, educational and recreational aspects of our lives...*" In the closing part of his speech, he uses an expressive statement that aims to engage everyone and reflect on the dangers that have emerged in the world: "...*Through reliable and responsible knowledge sharing and a strong sense of common purpose, we can deliver a better picture of how to secure our future in an enjoyable and enduring manner...*" At the end of the speech, the author thanks the audience for their attention: "*Thank you for your kind attention*".

Additionally, we find that an informative speech is intended to convey to the audience the importance of the issue being discussed, the speaker skillfully and effectively varies expressive linguistic units and means to create expressiveness in the speech.

The next stage of the study of creating expressiveness means in Bill Clinton's speech is the linguistic and stylistic analysis of each of the selected compositional parts. The introduction of the speech is characterized by the use of such a stylistic unit as the metaphorical periphrase "*Mother Nature*", which aims to convey to the audience that our planet is a home where every person is a full-fledged resident who is obliged to protect his or her home, for example: "*However, we have perhaps been living a little 'too well' off Mother Nature*".

Having analyzed the lexical composition of this speech, we can notice that in the main part the speaker mainly uses terms and clichés. After all, the main part is focused on conveying the importance of this danger to the listener. It should be noted that the main part of the speech under study is saturated with a significant amount of terminology from the field of ecology and nature conservation: "...*climate, flood, ecosystem, regulation, global scale, natural resources...*" The following terms are used in this part: "...*fisheries, water supply, waste treatment, water purification, protection against natural disasters, regulation of local and regional climate, as well as regulation of erosion, ozone depletion, acid rain and transboundary air pollution...*"

The speaker moves on to cover the main topic of the speech – the role of the media in informing humanity about environmental issues. In order to introduce his or

her main points on this issue, the speaker uses introductory words to indicate the connection between the individual parts, for example:

"First, it is complex.

Second, it is slow-moving.

Third, it is not seen as a promising career "

The author constantly uses linking words that summarize what he has said and make the transition to the next thought, among them are the following: "...*true, unless, therefore, however, for example, now...* "

The syntactic structure of the speech sentences deserves much attention. The speaker skillfully uses simple and complex sentences in the speech. This is because the chosen topic is quite important. Analyzing the syntactic structure of the speech, it should be noted that it is characterized by predominantly complex sentences with several subordinate clauses (56 cases) versus simple sentences (15 cases). Here are some typical examples of this type of speech: "...*But I would also like to point out that somewhere in the "timescale" between the immediacy of battling the haze and the long-term research on toxic accumulation, there are issues that would also be of interest to the layman...* " "*The Report noted the fact that we have in the last 50 years caused tremendous changes in our environment and unfortunately, for the worse; 60% (15 out of 24) of the ecosystem services that were assessed are being degraded and used unsustainably*".

The study has demonstrated that this speech is bright and emotionally expressive. The linguistic and stylistic means used help to inform the audience and convey the main idea to each of those present.

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SOURCES

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IDIOMATIC TRANSLATION AND ITS CHALLENGES IN TERMS OF ENGLISH-UKRAINIAN TRANSLATION

The aim of this study is to investigate translators' difficulties while dealing with idiomatic expressions and the reason these challenges occur. Although the issue is well-known, mistakes and problems still need to be addressed in newly translated books by amateurs and professional translators of publishing houses. Converting the meaning from one language to another correctly is essential to avoid confusion.

According to the Merriam-Webster Dictionary, an idiom is an expression in the usage of a language that is peculiar to itself either in having a meaning that cannot be derived from the conjoined meanings of its elements (such as up in the air for "undecided") or in its grammatically atypical use of words (such as a give way) [1].

Charles Hockett considers idiom "a modern linguistic agreement on one composed of two or more constituent parts generally deemed to be words. The closer the wording of an idiom reflects a real-world situation, the easier it is to interpret." [2, c. 92].

The main challenge of idiomatic translation is to convey the correct meaning from the source language to the language of translation. It may involve a cultural background as well as socio-cultural and historical peculiarities. The translator should be aware of differences in these aspects to provide an excellent equivalence to an expression used in the source language. The less discussed issue is that sometimes translators need help spotting the idiom and reading the expression literally instead of trying to understand its hidden meaning. M. Baker states that the more complicated an expression to understand in specific contexts, the more likely it will be recognised as an idiom by a translator.

As there are many difficulties and peculiarities in translating idioms and fixed expressions, researchers have found different ways to overcome them. For instance, M. Baker provided four problem-solving strategies in the third chapter of her book, addressing the issue as follows [3, c. 71-78]:

1. Using an idiom of similar meaning and form;
2. Using an idiom of similar meaning but dissimilar form;
3. Translation by paraphrase;
4. Translation by omission.

During the research, we sought examples that portray the challenges within the idiomatic translation in the English-Ukrainian context. These challenges are present primarily due to differences in cultures and socio-cultural contexts. The most noticeable one is the translation of the colloquial phrase "to take a shower" into Ukrainian by some famous publishing houses. The main mistake they make is that they translate the phrase directly as "взяти душ". However, in Ukrainian, it means to take a shower head, not precisely wash oneself with the help of the instrument. Our way to

translate it correctly is "приймати душ". The possibility of this translation mistake is that translators are trying to remove calques. On the other hand, they take the same calque from English, which sounds even less natural in Ukrainian society.

In conclusion, the issue of translating idiomatic expressions worldwide and in terms of the English-Ukrainian context is still alarming. Further research is needed to distinguish new ways of dealing with the problem and clear up all existing challenges.

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AGE PECULIARITIES OF CHARACTER FORMATION AT SENIOR SCHOOL AGE

Personality development in high school age is the gradual acquisition of experience in social behavior, the growth of consciousness, beliefs, and the formation of creative thinking. Today's schoolchildren want to be recognized for their individuality, originality, their right to take their place in society, to stand out from the crowd. High school students evaluate the educational process in terms of what it provides for their future. It is at this age that schoolchildren want to understand what this or that phenomenon is, to formulate their relationship to phenomena, to make something new and original. Among moral problems the first place take questions of good and evil, decency and correct decision-making.

The author N. Rohal states that teachers are more prone to adaptive and compromising types of behavior, while high school students are more prone to conflict ones, which is due to the age characteristics of the group. The development of interpersonal relations is largely determined by the characteristics of the interlocutors, which include gender, age, temperament peculiarities, and some personal traits [1, p.62].

Examinees with a compromising style of behavior consider themselves capable of controlling their informal relationships with other people and attracting attention and sympathy. Examinees with conflicting styles of behavior tend to control everything that happens around them, but there is a tendency to attribute responsibility for their failures to other people or consider them the result of bad luck [2, p.181].

Empirical research of this topic was conducted in Radomyshl Lyceum No. 1 named after T. G. Shevchenko of Zhytomyr region with 11th grade students. Students of this class were offered 5 methods.

The first method determines the character features of an individual. When conducting this methodology, we found out that: 20% of the subjects have a sanguine type, 15% have an apathetic type, 30% amorphous type, 10% neuro-realistic type, 5% paramorphous, and 5% are passionate and emotional, 15% generous-choleric type.

Therefore, the character can be stable or unstable, emotional, excitable, active. You just need to pay more attention and take educational or targeted measures.

The second method was "Determining the type of character according to K. Jung." With its help, we investigated the character type of an individual. The results of the study are as follows: 20% of children are extroverts; 10% have an introvert type; 70% are ambiverts.

Thus, after learning about the child's character type, you can determine what the positive and negative sides of each type are and this will give you the opportunity to direct a child to achieve his/her goals.

The third method was the assessment of the development of willpower. Analysis of students' answers showed that: 10% have a high level, 50% average level, 40% low level. Only one student showed a high level of willpower. Others showed a medium and low level. Therefore, it is necessary to master a strong-willed way of life so that there is an interest in self-education of strong-willed qualities.

The next conducted method is "Research of volitional self-regulation". In general, 50% of students received a high level of self-regulation, 10% received an average level, and 40% received a low level. High and low levels of volitional self-regulation prevail in the studied group. For a low level, the social environment influences a person, which does not provide opportunities for the individual to develop volitional self-regulation skills.

The analysis of the results of the empirical research allows us to conclude that the entire research group has an average level of impulsivity. In high school students, impulsivity can be caused by overwork or some nervous diseases. It is necessary to develop the skills of self-control, calculating the possible consequences of one's own actions, taking into account the interests of other people.

Conclusions. In the early youth, society or community plays a significant role, it contributes to the formation of views and beliefs of high school students. Therefore, character is not inherited, it is formed and developed under the influence of the external environment, its upbringing. This influence is socio-historical and individual. The high school period is important and responsible, because it determines the future life of a person.

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INTEGRATED APPROACH IN LEARNING A FOREIGN LANGUAGE BY STUDENTS OF HIGHER EDUCATION INSTITUTIONS

In the modern educational environment, the study of a foreign language becomes a key element in the training of students of higher education in language specialties. Currently, there are various approaches to teaching foreign languages, but the problem is the lack of a unified method that would ensure the integration of foreign language learning with specialized subjects.

The issue of teacher training for teaching integrated education remains relevant, in particular the issue of how to properly prepare teachers for the successful implementation of these methods. Developing effective assessment systems for foreign language students is an important task, and this may involve the development of specialized tests and assessment criteria, especially in higher education where students may have different levels of speaking competence. Research is at the stage of studying how to adapt the methodology of integrated learning for different audience.

The question of how to ensure high quality of education and compliance with standards in institutions of higher education that use an integrated approach remains relevant. These aspects are the subject of active scientific discussion and research in the field of education. Solving these issues is important for the further development and optimization of an integrated approach in education to achieve maximum efficiency and benefit for students.

The aim of this research is to consider and analyze the integrated approach as an innovative method of learning foreign languages and subjects that combine language learning and specialized material to achieve the maximum effectiveness of student learning.

Let's consider an integrated approach to learning a foreign language. This approach is an interesting and effective methodology that combines different approaches and strategies to ensure a more complete, in-depth and balanced process of learning a foreign language. It takes into account all aspects of learning, such as speaking, listening, reading and writing, and focuses on real life situations to apply the acquired knowledge [1, p. 141].

An integrated approach in learning and education is considered by scientists as an approach that promotes the fusion of various aspects of learning and student development through the integration of various disciplines, practices, methods, ideologies and approaches. An integrated approach involves combining various subjects and academic disciplines into an interconnected educational context. For example, an integrated approach may involve combining subjects such as math and science, art and history, for a deeper understanding of a topic or concept. An integrated approach promotes contextualization of learning, where students learn material not as isolated facts, but in the context of real situations, problems, or tasks. Scholars consider

an integrated approach as a means of promoting the healthy development of students, including their intellectual, social, emotional and creative aspects. An important aspect of the integrated approach is its practical application in real life. This means that students learn skills and knowledge that can be useful in different situations and in their future professional life. An integrated approach allows students to develop a deep understanding of a topic or problem, as they consider it from different perspectives and explore the relationships between different aspects [3].

In general, the integrated approach is considered by scientists as a way to expand and deepen learning, make it more interesting and useful for students, as well as contribute to their overall development and preparation for real life challenges. An example of an integrated approach might include creating a lesson in which students listen to audio recordings in different situations, then they discuss them in groups or in pairs using active speaking practice. They can then create a project related to the topic, such as a role play or a short film, where they apply the knowledge and skills they have learned. This approach helps students develop not only speaking skills, but also creativity, communication and cooperation.

Scientists believe that the integrated approach has a number of advantages, among which we can identify the following:

1. *Deeper learning of the language.* The integrated approach provides an opportunity to immerse students in the language environment, which contributes to a deeper assimilation of grammar, vocabulary and other aspects of the language.

2. *Practice of a foreign language.* Students learn to use the language in a variety of situations, which helps develop their communication skills and confidence.

3. *Enrichment of cultural understanding.* An integrated approach allows students to explore the culture of the countries where the language is used, enriching their cultural understanding and broadening their worldview.

In general, the integrated approach to learning foreign languages is a dynamic and effective method that promotes the development of a wide range of skills and educational and cognitive abilities in students. It helps to make the language learning process more exciting and practical, providing students with language acquisition at a deeper level and the ability to apply it in real life situations.

Let's consider specific examples of successful use of an integrated approach in various educational contexts:

1. Language education in an interactive museum: students learn the history and culture of different countries by visiting the museum. They listen to lectures and conduct discussions about exhibits using the language of that country. This approach allows students to be immersed in a real language context.

2. Language education in STEM education: students study science, technology, engineering and mathematics (STEM) in a foreign language. They solve mathematical problems, conduct experiments and create projects using the language of these sciences. It helps improve their speaking and science skills.

3. Language education in humanities: students study literature, history and social sciences in a foreign language. They analyze literary works, research historical events

and conduct discussions about socio-cultural issues. It helps to develop their analytical and literary skills.

4. Language education in art and music: students of higher education study art and music in a foreign language, perform musical compositions, paint pictures and create other works of art. This helps to expand their artistic possibilities and develop linguistic creativity.

5. Language education in tourism and hotel and restaurant business: students study hotel business and tourism in a foreign language, prepare hotel projects and study cultural aspects of different countries. This prepares them for work in the international hotel and restaurant business and tourism.

Conclusion. An integrated approach to foreign language learning has a significant impact on student learning. It promotes a deeper understanding of a foreign language and subject knowledge, develops communication skills and practical use of the language in real situations. This approach provides a holistic and balanced education, helping students to cope with the challenges of the modern world and open new horizons in their studies and life. The study highlights the importance of an integrated approach in the modern educational environment. With the help of this technique, students have the opportunity to simultaneously develop speaking skills and acquire knowledge in other subject areas. An important advantage of these approaches is their practical content and ability to prepare students for life and work at the international level [2].

Thus, an integrated approach helps to create a learning environment in which students are actively involved in the learning process and develop critical thinking, analytical and communication skills. On the other hand, it allows students to study subjects in a foreign language and develop their speaking competences in authentic situations.

In general, the integrated approach opens up new horizons in education, helping students to develop not only language skills, but also a wider range of competencies that they will be able to use successfully in the future.

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HOW MUSIC HELPS TO LEARN ENGLISH

Nowadays one of the most important tasks for Ukrainian people is to learn the English language according to a new law № 9432 of the Constitution of Ukraine. Despite of the importance of this law, little attention is paid to studying English by Ukrainians.

According to the calculations of scientists and linguists only 34 percent of people have started to learn this language this year. But what about 66 percent of people? They for some reason (or on purpose) do not want to learn this foreign language. But what if those people would try to inspire themselves with something from abroad, like books, videos, podcasts, videogames or music? However, little research has been undertaken to study the issue of studying English in the modern society nowadays. The aim of our study is to identify effective ways of learning English.

“You should develop students’ cognitive abilities, “to ignite thirst for knowledge and thoroughness in learning”, for which it is necessary to combine pleasure and usefulness, to encourage children's curiosity,” – once said the famous Czech educator, the "Father of Pedagogy" Jan Amos Comenius [1].

Furthermore, a lot of famous people exhort other pedagogues treading in steps of Jan Comenius. For example, German philosopher and psychologist Johann Friedrich Herbart. He urged a teacher / an educator not to be boring, but to build learning on the child's inherent interests [2]. It seems to me that his saying also applies to adult people who are studying. Combining work / studying process with something enjoyable can make it more interesting and less boring than it seems at the first glance. Moreover, the Ukrainian writer and pedagogue, Sofia Rusova, who told educators and teachers not to force children to observe and explore the world, because in this way children will lose interest, thirst for learning new things. Kids can explore the world by themselves and educators just need to help them with it [3].

A little example from my experience. I have been learning the English language since the age of 4. I know it is pretty impressive. But, to be honest, I had a burnout a lot of times, while studying this foreign language. I had less inspiration, did not want to develop my language skills anymore: did not want to read books in the English language, did not want to do my exercises in English. At that time I might not want to see anything in this abroad language ever again.

But I have found a perfect solution to this problem. Music becomes my new inspiration (English songs). I know my method is may not suitable for all people, but maybe I can try to change someone's mind in this article.

Firstly, listening to foreign music is very good to improve English vocabulary. You can find and keep in mind new words which can definitely be in this type of music.

Secondly, listening songs from abroad can improve speaking skills. You can remember how pronounce words, phrases, or even sentences from different songs.

And thirdly, there is the most important thing in listening to music from abroad that it is fun. You can listen to it while reading books in the foreign language or doing your English exercises. For kids in the kindergarten, we can use songs in English during lessons, strolls, physical education minutes, and so on. Music can be used everywhere.

To sum up, all kinds of ways to study English are good. And in my opinion music is a very useful tool for learning English for both children and adults.

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YOUTH SLANG IN THE MODERN ENGLISH LANGUAGE

English youth slang is an integral part of the English language and culture. The slang of young people is the most responsive to all events in life. It picks up and reflects new phenomena and changes itself in the process of their transformation, and thus it has an impact on the use of the spoken version of the language used in everyday life.

The issue of slang is a subject of constant scientific research. Various aspects of it have been studied by such researchers as E. Partridge, G. Mencken, V. Vilyuman, V. Balabin, U. Potiatynnyk. Scientists and researchers who have dealt with the problems of slang have different views on the concept of slang and its meaning in everyday life of people. According to E. Partridge, many American researchers use the word "slang" as a synonym for jargon [3, p. 8].

However, little research has been undertaken to study the problem of youth slang in the modern English language. The aim of our study is to identify the specifics of the modern English language youth slang.

English is one of the most important languages in the world. It is the official language of business, science, medicine, and politics. Moreover, the English language is constantly evolving. Many English words are used every day, and it is extremely difficult to keep track of all the changes in the vocabulary of English-speaking nations. This is especially true for slang units.

Slang is defined as a purely colloquial language that is considered to be below the standard of the language of educated people and consists of both new words and common words used in special meanings. Youth slang, as a rule, unites groups of its speakers through intra-group ties.

On the one hand, D. Greenough and D. Kittridge characterized slang as a vagrant that "wanders in the neighborhood of literary language and is constantly trying to find its way into refined society" [3, p. 10]. On the other hand, slang is considered a sign of life, renewal and progressive development of the language. Social development, technological progress, and new cultural trends contribute to the development of English youth slang, which is a significant layer of spoken language that changes quickly and is constantly renewed.

Unlike common expressions, slang is also actively used in the language of educated people, representatives of a certain age or professional group. The most famous example is youth slang. It helps to stand out from their peers and clearly demonstrate their commitment to a particular subculture. You should pay due attention to slang when learning the language, especially if you plan not only to read classic English literature but also to communicate with your peers face to face using "live" language.

It should be noted that there are different types of youth slang in English. When classifying slang, it is worth paying attention to the opinion of V. G. Viluman. The scientist has come to the conclusion that slang words can be divided into two groups: general slang words and special ones [5, p. 15]. The first group is words used by many people, it is colloquial vocabulary, ambiguous, widespread and in great demand in everyday communication. Cockney slang, for example.

Another group of slangs identified by V. G. Viluman is special slang. This group of slang is focused on a specific topic. It depends on the person's profession or interest. For example, youth slang, student slang, professionalisms and computer slang.

Consider Cockney slang. Cockney rhyming slang in English is a type of slang in which certain words are used instead of other words that they rhyme with. In Cockney rhyming slang "apples and pears" means "stairs". In the modern English-speaking world this is a fairly well-known type of slang. Most often it is the slang of adults, educated people. This form of expression puts the speakers in an awkward position. Cockney rhyming slang is so common in modern "British" English that many people use it in their daily conversation without noticing it. For example:

«Let's have a butchers hook at that magazine» (butcher's hook = look).

«I have not heard a dickey bird about it» (dickey bird = word).

«Use your loaf of bread and think next time» (loaf of bread = head).

«Did you half-inch that car? » (Half-inch = pinch, meaning steal) [4, p. 12].

A particularly popular way of enriching computer slang with grammatical jargon is to form plural nouns by adding the ending -xen: box - boxen, socks - soxen.

There are so called slang expressions "new and bright" that cannot be made up without a good imagination, for example, "a think-machine" (brain), "a sparkler" (diamond), "pickers" (hands).

Various colloquialisms – words and expressions that are unique to alive communication. They are characterized by their ambiguity. For example, chink is a noun with the meaning "cash", "to soapbox" is to rally, "a jolly" is to have a good time, "to learn the ropes" is to know all the ins and outs.

Furthermore, it is necessary to distinguish figurative words and expressions. On the one hand, there are figurative professionalisms "land-shark" – lawyer, "gospel-grinder" – pastor, and, on the other hand, there are commonly used figurative words: "yes-man" – flatterer, "rubber-neck" – gawker. Sometimes abbreviations are considered slang: "pro" – professional, "props" – properties, "biz" – business.

Nowadays even such expressions like "of course", "OK", "to take care", "to get up", "lunch" have been considered slangisms in Britain and America. The word "OK" was most often used in the 1930s, and it quickly entered almost all languages of the world. This expression was derived from the phrase all correct. This word is understood in almost all countries including non-English-speaking countries, but it is avoided in business speech. "Cool" is also one of the most famous slang expressions in English. In dictionaries you can find only one translation of this word "cold" but in everyday communication, "cool" is used in those moments when we mean "Great!"

There are ambiguous views on the term "slang" that lead to different attitudes towards it. However, there is no denying the fact that slang is the most vivid, emotional, and widespread style of speech that responds to any changes in people's lives and helps them express their thoughts and feelings as deeply as possible.

To conclude, in modern English slang is an active part of alive spoken language making up a significant part of its vocabulary as it vividly reflects the diversity of society's interests, the assessment of certain phenomena by native speakers belonging to different social and professional groups. It is one of the sources of replenishing the lexical composition of the language and one of the elements of the society's culture.

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THE IMPORTANCE OF ENGLISH LANGUAGE TEACHING METHODOLOGY IN PRESCHOOL EDUCATION

The article deals with effective implementation of English language teaching methods in preschool institutions. Learning English at such a young age can have many advantages, but there are several problems that teachers can face. One of these problems is the choice of effective teaching methods that take into account the characteristics of young students, their psychological characteristics and level of development. Another problem is to provide a language environment that would support English language teaching in preschools. Moreover, an important problem is the involvement of parents in the learning process and creating a home environment that contributes to the language development of the child.

Scientific research on the issue of teaching English in preschool institutions is widely discussed in the literature on pedagogy, linguistics and psychology. The main research on this topic focuses on the study of effective methods and strategies aimed at improving the process of learning English at such a young age. Many studies confirm the effectiveness of game learning in language learning. The game is based on interaction allowing children to learn the language in a natural environment. Ramadhani Arti proved that games are useful and effective tools that should be used to increase vocabulary. Ramadhani Arti's research demonstrates that incorporating games into vocabulary instruction can be a beneficial and effective strategy for educators and learners [1].

Furthermore, David Crystal researched the role of language tools and communication strategies in children's language acquisition focusing in particular on the importance of context and communication in the learning process. In his work Crystal underscores the importance of the environment in which language learning takes place. He suggests that children learn language not merely through passive exposure to words and structures but through active engagement with their surroundings. This engagement involves interactions with caregivers, peers, and the broader social context [2]. The involvement of various sensory systems contributes to better language acquisition in preschool children. The involvement of parents in active support of children's language development has a positive effect on their success in learning English. Joyce and Hipkins argued that with appropriate teacher support and the use of purposefully designed learning materials pre-school children can start managing foundational aspects of self-regulated learning (SRL) and can begin taking responsibility for their own learning to varying degrees of sophistication and consistency. By developing these skills early educators can help children become more independent and proactive learners, laying a strong foundation for their future academic success. Some studies focus on developing individualized learning programs that take into account the unique needs of each child [3]. The aim of our article is to

highlight the significance of employing effective English language teaching methodologies in preschool settings. By discussing the importance of early exposure, play-based learning, multisensory approaches, language-rich environments, individualized instruction, and parental involvement, the article aims to underscore how these strategies contribute to fostering English language proficiency in young learners.

In today's globalized world, proficiency in the English language is increasingly essential. As a result, starting English language education at an early age has become a priority for many parents and educators. Kindergartens are that sphere that makes it crucial time to introduce English language learning. But the effectiveness depends on the methodology used in teaching English to young learners in preschool settings. The research has shown that children have a remarkable capacity for language acquisition, especially during their formative years. Introducing English language learning in preschool takes advantage of this critical period, allowing children to absorb language naturally and effortlessly. Preschool educators can lay the groundwork for future language proficiency. Preschoolers learn best through play, exploration, and hands-on experiences. Therefore, incorporating English language learning into play-based activities can be highly effective. Activities such as singing songs, playing games, and engaging in role-playing scenarios not only make learning enjoyable but also facilitate language acquisition in a meaningful context. Young children learn better when multiple senses are engaged simultaneously. Therefore, a multisensory approach to English language teaching in preschool is crucial.

Utilizing visual aids auditory resources, tactile materials, and kinesthetic activities can appeal to different learning styles and reinforce language concepts effectively. Creating a language-rich environment is essential for fostering English language proficiency in preschool settings. Labeling classroom objects, displaying English books and posters, and incorporating English into daily routines and conversations all contribute to building a supportive language environment that encourages language learning and usage. Assessing each child's language proficiency level and adjusting instruction accordingly ensures that every learner receives the support they need to succeed. Whether through small group activities, one-on-one interactions, or differentiated instruction, tailoring the learning experience to meet the needs of each child promotes language development and fosters a sense of confidence and achievement. Parents play an important role as partners in education, supporting and reinforcing English language skills at home. Providing parents with resources, tips, and strategies for promoting English language development outside of the kindergarten empowers them to actively participate in their child's learning process [4].

In conclusion, effective English language teaching methodologies in preschool establishments are essential for laying a solid foundation for children's language development. Early exposure, play-based learning, multisensory approaches, language-rich environments, individualized instruction, and parental involvement are key strategies in facilitating English language acquisition among young learners. By implementing these methodologies preschool educators can nurture children's language skill preparing them for success. By working together, educators and parents

can create a seamless language learning experience that maximizes children's potential and instills a lifelong love for learning English. Following these technics, educators can empower young learners to become confident and proficient English speakers equipping them with valuable skills for future academic and personal success.

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ANGLICISMS IN THE UKRAINIAN LANGUAGE

Due to the rapid development of the modern world, the influence of the English language on the Ukrainian language is becoming more and more noticeable. For this reason, a new type of borrowing has emerged, namely anglicism — words or expressions of English origin that are used in other languages.

In Ukrainian linguistics the enrichment of the lexicon with foreign words is considered in many studies, among which we should highlight the works of O. Potebnya, I. Ohienko, and S. Semchynskyi. Almost until the end of the 19th century the question of the expediency or in expediency of borrowing was considered from the standpoint of the problem of language purity. Scholars and public figures of that period sought to prove the possibility of replacing any borrowed word with a Ukrainian one. I. Ohienko, I. Nechuy-Levytsky and B. Hrinchenko especially insisted on the need to free the native language from foreign borrowings. Ivan Franko was one of the first to convincingly justify the need for foreign language borrowings.

The relevance of the process of borrowing foreign language vocabulary into the Ukrainian language has attracted the attention of many researchers in the last decade of the 20th century and at the beginning of the 21st century. In particular, O. Lysenko and H. Serhieieva have studied the development of foreign language borrowings in

scientific terminology; T. Mastruk has investigated English borrowings in functional and stylistic varieties of the Ukrainian language of the late 20th and early 21st centuries (based on Ukrainian periodicals of 1997-2010) and analysed their stylistic functions in texts of informational and journalistic styles.

However, little is known about the anglicism in the Ukrainian language. The aim of our study is to analyze the peculiarities of such a linguistic process in the Ukrainian language.

This phenomenon of anglicisms is becoming more and more common in Ukraine, and is reflected in various spheres of life — from business and technology to culture and modern entertainment. The reasons for borrowing can be different. Let us consider the main classifications of linguistic and extra-linguistic factors of borrowing which enrich the vocabulary of the modern Ukrainian literary language. Thus, L. Arkhyenko divides the main reasons for borrowings into two groups:

1. Linguistic which includes such factors as:
 - lack of a word to name a new object, phenomenon, concept, etc;
 - the need to differentiate between concepts that are similar in meaning but still different;
 - the tendency to replace phrases and descriptive phrases with one-word names;
 - the need to specialise concepts in a particular field;
 - the need to designate a communicatively relevant concept: if the concept touches upon the vital interests of people, the word that designates it becomes commonly used;
 - the tendency to consolidate borrowings that can be combined into a certain lexical range based on their general meaning and the repetition of any structural element;
 - the presence in the receptor language of established terminological systems that serve a particular industry;
 - the need for new nominations as a tribute to fashion, prestige, and increasing one's own authority in the eyes of others.
2. Extra-linguistic: economic; socio-political; cultural and everyday life; scientific; socio-psychological [3].

In the 19th century rich English literature began to enter in Ukraine, and imitation of everything English was fashionable. Moreover, according to S. Ryzhykova words were borrowed that "refer to the life and customs of the social elite, objects and realities of secular life". The researcher explains this by the fact that Ukrainian nobles were fascinated by Western European culture borrowing English words [4].

The process of forming anglicisms in the Ukrainian language is happening because of borrowing, transliteration and adaptation. Some examples in modern colloquial and written dictionaries are:

1. In economics (marketing, budget, manager).
2. In communication (roaming, banner, email).
3. In science, culture, education (Internet, college, fantasy).
4. In youth subculture (video, blog, trend).

5. In everyday life (lunch, second-hand, shaker).

On the one hand, the use of anglicisms enriches the Ukrainian language with new concepts and expressions that reflect modern realities. On the other hand, their excessive use leads to a loss of uniqueness and originality of the vocabulary.

Governmental and linguistic bodies are working to preserve linguistic richness and develop in the context of globalisation, in particular by developing their own terms or encouraging the use of Ukrainian analogues.

In conclusion, anglicisms have become an integral part of the modern Ukrainian language due to global trends and technological progress. It is important to find a balance between the use of English terms and preserving the uniqueness of the Ukrainian language to ensure its development and survival in the world.

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THE USE OF THE CARTOON "PAW PATROL" IN THE METHODOLOGY OF TEACHING A FOREIGN LANGUAGE TO PRESCHOOLERS

The modern stage of society's development is characterized by new, previously unknown problems. The most significant of them are the trend toward globalization of social development, the convergence of nations, peoples, and states, and the transition from instrumental to scientific and informational technologies. A foreign language is more and more persistently entering our life, integrating Ukrainian society with the world cultural space. Therefore, knowledge of foreign languages becomes a need of time, a necessary component of the education of a modern person.

The methodical system of education and upbringing of pre-schoolers is significantly different from the education of school-aged children. The need to create a theoretically grounded and experimentally proved methodical system of teaching a foreign language for preschool education has begun to increase. Such a system should be based on the humanistic paradigm of education, provide a personal and active approach in the formation of children's foreign language competence, take into account both the achievements of modern technologies of preschool education in general, and the achievements of modern methods of teaching a foreign language. At the same time, we should take into account the opinion expressed by D. Brown that no theory or factor can provide us with a magic formula for revealing the secret of mastery of a foreign language [3]. However, we can enrich the widely developed theory of second language acquisition, which will help make a conscious choice of a certain method or technology. That is why, the aim of this article is to demonstrate new methodological teaching technologies at the English lessons at the kindergarten.

Teaching a foreign language of preschool children was studied by many scientists. So, O. Glukhareva considered the use of visualization in teaching preschool children a foreign language. O. Matetska pointed out the importance of using language games during learning a foreign language by preschool children. Z. Nikitenko revealed the role and functions of the textbook in teaching children a foreign language [1].

One of the famous Ukrainian scientists is Petro Oleksiyovych Beh was for many years was the Chairman of the Scientific and Methodological Commission for Foreign Languages under the Ministry of Education and Science of Ukraine, a member of the Educational and Methodological Association for Romano-Germanic Philology and Foreign Languages of the Higher Education Institution of Ukraine under the Ministry of Education and sciences of Ukraine. He was repeatedly the chairman of the jury of the All-Ukrainian English Language Olympiad, the deputy editor-in-chief of the scientific and methodical magazine "Foreign Languages in Educational Institutions" [2]. The theme of teaching a foreign language was very interesting for him.

Another important contribution to this field was made by Olha Olehivna Kolominova, the author of more than 120 publications, including 22 textbooks and teaching methods for teaching English (15 of them with the seal of the Ministry of Education and Culture of Ukraine) for pre-schoolers, primary school students, and 9th grade students of secondary school, students of linguistic and non-linguistic institutions of higher education [4].

According to many researchers, early acquisition of a foreign language (in preschool age) is the most sensitive. In this context, mastering a foreign language is considered as one of the conditions for improving the quality of children's speech activity. The expediency of teaching preschool children a foreign language is reflected in a number of works of domestic and foreign scientists (V. Ginsberg, S. Hozdetska, V. Plahotnik, etc.). Teaching a foreign language in preschool educational institutions is aimed at forming basic oral communication skills based on the acquisition of linguistic material and promoting the general mental development of pre-schoolers. It is known that at the end of preschool age, children complete the process of phonemic perception, and awareness of the sound side of their native language appears. Older

preschool children actively play with sounds, words, rhyme them, in such a way children develop a linguistic attitude to words.

Therefore, we decided to enrich the education of preschool children with the cartoon "Patrol of Puppies".

After screening on Nickelodeon, the series became very popular among children's audiences, consistently showing high ratings, and in the fall of 2013 became the highest-rated preschool television program in the United States.

Most reviews of the series are favourable and recommendatory. According to critics, the animated series teaches children to solve problems, and the plot is devoid of violence, and the negative characters in it are more funny than dangerous. Adventures of Puppies teaches viewers to interact as a team and help others. This allows you to recommend the animated series to a younger children's audience.

The cartoon "PAW Patrol" can be used effectively in teaching preschool children a foreign language in several ways:

1. Vocabulary. Playing PAW Patrol episodes in English can help children learn new words and phrases. The teacher can show a cartoon with subtitles so that children see and hear new words at the same time, expanding their vocabulary.

2. Development of language comprehension skills. By watching a cartoon in a foreign language, children will develop their language comprehension skills, the ability to perceive language information by ear and reproduce it.

3. Language practice through dialogues and situations. The cartoon contains many dialogues and situations that can be used to develop language skills. Teachers can pause the cartoon at certain moments to discuss key situations and dialogues, or even create role-plays with children in which they act out the characters' dialogues.

4. Cultural exposure. "PAW Patrol" can also be used to introduce children to the cultural aspects of the country in which they are learning the language. The teacher can discuss topics that arise in the series, such as traditions, customs, and moral values.

5. Creative activities. After watching PAW Patrol episodes, children can create their own stories using the new words and expressions they learned while watching. This contributes to their creative development and encourages the use of language in their own works.

6. Motivation to learn a language. Using a favourite cartoon can increase the motivation of children to learn a foreign language, because they will enjoy the process of learning, communication and entertainment at the same time.

Considering these aspects, the cartoon "PAW Patrol" can become a valuable tool for teaching preschool children a foreign language.

Here are some examples of didactic games on a foreign language using elements of the cartoon "PAW Patrol":

1. "Rescue Mission" (Rescue Mission):

- Kids can create their own "rescue mission" by choosing PAW Patrol characters and rescue situations.

- Each character can have their own task during the mission, for example, Marshall can be responsible for putting out fires, and Skye – for searching for missing items.

- The game can take place in English, where children command their favourite characters and carry out various commands and instructions.

2. "Paw Patrol Alphabet Hunt" (Search for the alphabet from "PAW Patrol"):

- Children can search for the letters of the alphabet that are hidden in the pictures from "PAW Patrol".

- When the child finds a letter, he must name it and formulate a sentence starting with this letter. For example: "A is for Adventure Bay. Adventure Bay is where the Paw Patrol team lives."

3. "Paw Patrol Memory Game" (Game "Memory" with "PAW Patrol"):

- You can place images of characters from the cartoon "PAW Patrol" on the playing cards.

- Children should carefully rotate the cards and try to find pairs of identical images.

- Every time they find a pair, they have to name a character and say a short phrase in English related to that character.

4. "Paw Patrol Role Play" ("PAW Patrol Role Play"):

- Children can play the roles of their favourite characters from the cartoon "PAW Patrol".

- They can create their own rescue situations and dialogues between characters using English.

- This will allow children to practice speaking and develop their imagination while playing.

To conclude, the cartoon "PAW Patrol" may be used in teaching a foreign language with the aim of reaching the best results. Using cartoons promotes active learning and funny experience for children of any age.

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STRUCTURAL AND SEMANTIC ANALYSIS OF THE NAUTICAL TERMS IN THE ENGLISH LANGUAGE

The paper aims to study the structural and semantic peculiarities of the nautical terms in the English language. The relevance of the research is determined by the dramatic rise of worldwide interest in using maritime transport, caused by international integration and developing economic relations between the countries, and a lack of a previously formed knowledge about database containing the terms referred to the maritime sphere.

The work aims to collect and analyze the structural and semantic peculiarities of the nautical terms in the English language. To achieve this goal, the following tasks were fulfilled: to clarify the meaning of the concept of the term and establish the linguistic status of the term; to define the semantic peculiarities of the nautical terms; to establish the structural peculiarities of the nautical terms.

The object of the research is the nautical terms of the English language.

The subject of the study is the semantic and structural features of the nautical terms in the English language.

In this study, 200 terms, taken from the Dictionary of the Nautical Words and Terms [5], were analyzed as the research material. In conducting our research, we used the following methods: continuous sampling method, analysis method, generalization method, and quantitative analysis.

Currently, nomination and terminologization are taking place as humanity progresses, scientific and technological development continues, and the maritime industry is no exception. Given the growth of national integration and international economic ties, nautical terminology is becoming increasingly important, necessitating its study and research.

According to I. M. Gumovska, a term is a special word or phrase used in professional activities and functioning in special conditions. A term is a verbal definition of a concept that is part of the system of concepts of a particular field of knowledge in a particular profession. A term acts as the main conceptual component of the language [1, p. 9].

There is a point of view that argues that terms have a nominative, signifying, expressive, and even reflective function, as they name, denote, express, and even reflect concepts [3, p. 28]. The other one is the point of I. M. Kochan, who argues that terms perform both the reader's (designation of ideas) and definitional (definition of the relevant concept) functions [2]. It is worth noting that only terms can combine concepts and lexical meaning, despite their differences.

A. I. Opalko and O. A. Opalko believe that the connection with scientific concepts is the main feature that distinguishes terms from ordinary words. Since a term, like a word, contains researched facts and theoretical understanding, this extra-

linguistic characteristic affects the linguistic status of the term. Nevertheless, the term conforms to the rules of the language in which it was created and is used. These scholars argue that people from different sciences add their understanding of the term. This is because each science conveys its ideas and concepts. Terminologists argue that none of these methods have a single basis for defining terms and are not rigorous.

In our study, we understand terms as special words or phrases that are used in a particular scientific field and are associated with scientific concepts. They occupy an important place in the thesaurus of a linguistic personality as a tool of communication between specialists in a certain field for mutual understanding between them.

In the practical part, the semantic peculiarities were established. All the lexical units were distributed into the following groups, according to the things the meaning of which they denote:

1. **Terms depicting maritime everyday life**, including clothing, weapons, housing, communication, etc., **which are 18%** (*Jack Knife*, which is a knife with a folding blade invented by Jacques de Liege in the late 16th century; and *Monkey Jacket*, which is a uniform jacket as distinguished from frock coat);

2. **Terms referring to the navigation**, including maritime infrastructure and movement by the sea or other waterway, **account for 8%** (*Cargo Port*, which is a watertight door in the ship's side and used for passing cargo inboard and outboard in certain types of the ship; and *Airt*, which is the Scottish word for a direction by compass);

3. **Terms depicting participants in the movement by the sea or other waterway, which are 7%** (*Naval Officer*, who is commissioned or subordinate officer in Royal Navy, or a foreign navy; and *First Mate*, who is a deck officer next in rank below Master);

4. **Terms defining vessel components and engineering structures account for 13%** (*Cat Back*, which is a small rope attached to the back of the hook of a cat purchase and used for placing the cat hook into the ring, or balancing band, of the anchor when the anchor is awash; and *Automatic Helmsman*, which is a machine that is controlled by compass and controls steering engine);

5. **Names of maritime organizations, which are 4%** (Small Damage Club, that is mutual indemnity society, of shipowners, that covers damage to vessels of members when amount of damage does not exceed 6% of the insured value of the vessel concerned, and is, therefore, excluded from usual policy of insurance; and Mutual Indemnity Insurance Association, which is group of shipowners, and others, who combine to carry those risks excluded from policies of marine insurance);

6. **Astronomical and geographic terms account for 18%** (*Castor*, that is star a Geminorum and when observed by a telescope is seen to consist of three pairs of twin stars; and *Eddy*, that is wind or water moving in a curved or circular direction and also could define current of water running in a direction contrary to that of a tidal stream);

7. **Terms referring to the seafarer's culture, which are 4%** (*Hornpipe*, which is one of the dances of nautical origin; and *America's Cup*, which is the

international yacht racing trophy given by the Royal Yacht Squadron and won by the yacht 'America' in 1851);

8. **Types of vessels account for 13%** (*Argosy*, which is a large Adriatic merchant ship of the Middle Ages, also this word is used, poetically, for freight-carrying ships in general; and *Monitor*, which is a war vessel in which speed and other considerations have been sacrificed to obtain maximum gun power and armor protection);

9. **Names of maritime documents, which are 15%** (*Jerquing Note*, which is a certificate given by Customs searcher when the ship has been searched and no unentered goods are on board; and *Navicert*, which is a certificate of Destination for Specified Cargoes, issued by governments in wartime).

Also, the structural features were defined. After analyzing the lexical units, we achieved the following results: *nouns* (35%), *noun phrases* (56%), *adverbs* (4,5%), and *sentences* (4,5%). Consequently, *nouns* were divided into ones made using *one stem* (83%), *suffix method* (5%), and *compounding* (12%). The *noun phrases* were distributed into *two-component* (80%), *three-component* (17,5%), and *multi-component* (2,5%).

Taking into account the semantic analysis of the nautical terms, we have the following picture. Terms depicting maritime everyday life, astronomical and geographic terms, and names of maritime documents predominate in the sampling. We consider the possible reason for this in the following way: terms depicting maritime everyday life are really important to understand the main differences between a seafarer's life and the ordinary person's, astronomical and geographic terms – for the navigation in the sea, and names of maritime documents – as this sphere has strictly regulated standards for the transportation of the goods. Less often, we come across the terms referring to the seafarer's culture and names of maritime organizations. In our opinion, the main reason is that the maritime cultural aspect is not important in the logistic function of the maritime sphere, and the quantity of maritime organizations is low.

Considering the structural analysis of the nautical terms, we can conclude that the most widely-used structure used during the term formation is the nominal phrase, especially two-component ones. On the other point, adverbs and sentences are less used ones. We predict the reason is that two components are enough to convey the full meaning of the thing the term denotes, and, taking into account the minor use of adverbs and sentences, we can argue that terms very often denote material things. It is usually done by using nouns and adjectives as specifications.

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THE EFFECTIVENESS OF PRODUCT-BASED APPROACH IN TEACHING WRITING

Being one of the primary language skills, writing is used for written communication and language exchange. According to Brown (2001), writing is a process of idea generation, and coherent organisation of thoughts, with discourse markers and rhetorical conventions as means of cohesive transfer of concepts into a written text. Additionally, this process includes revision for a clearer meaning, editing for appropriate grammar, and producing a final product. Consequently, the final product of writing is the result of thinking, drafting, and revising procedures.

Nunan (1999) points out that for native speakers the production of a coherent and fluent piece of writing is presumably the most challenging thing in language. Foreign language learners face a far bigger challenge. A growing body of literature (e.g. Chastain, 1988; Fatemi, 2008; Ferris, 2003; Hyland, 2003) has addressed the significance and the difficulty of mastering this critical skill for language learners in school and lifetime (Warschauer, 2010).

When it comes to teaching writing in ESL, there are a number of approaches suggested by scholars, two of which are commonly practised in the classroom: teaching writing as a process and a product.

The *product-based approach* aims at the final product, the coherent, error-free text, where the end product is achieved by replicating the model text which is presented and analysed at the preceding stage of the lesson. On the contrary, the more contemporary *process-based approach* focuses on the stages involved in drafting a piece of text, treating the writing procedure as a highly creative activity that requires time, feedback and critical thinking to master the needed skill.

In writing pedagogy, the *product-oriented approach* is considered a more traditional method of teaching writing, having been practised for many years. Many ELT practitioners regard it as a prominent strategy for improving writing proficiency in ESL learners and favour this approach over any other for its effectiveness in relatedness to and consistency with bottom-up processing. The core of the product approach is sentence-level grammar, i.e., individual expressions/utterances and their structure system in text as the backbone units of discourse. Hence, discourse is the product of fitting these units onto the text and writing is seen as “a product constructed from the writer’s command of grammatical and lexical knowledge, and writing development is considered to be the result of imitating and manipulating models provided by the teacher” (Hyland, 2003: 3).

Upon literary review of the matter, it was determined, that the product-based approach is effective in terms of adopting the target language.

By drawing on the concept of product writing, Harmer (2004) has shown that the approach of analysing the model text aims to help students see what language is used in the text and how it is constructed. The idea behind this method is that before learners can be expected to produce a coherent piece of text, they should first master the language at the sentence level. Therefore, classroom activities focus on the engagement of learners in imitating, copying and modifying models of the target language that usually focus on sentence formation, punctuation and grammar. By practising such exercises in isolation, learners are expected to acquire the ability to produce a piece of writing with great accuracy, through habit formation to produce well-constructed sentences.

This principle, however, implies exposure to an increased number of tasks focused on grammar and syntax to improve learners’ accuracy and reduce errors; model patterns are usually presented in the form of separate language fragments. This can be considered a disadvantage, as learners are likely to develop limited writing and will not be able to produce a piece of text beyond a few memorized grammatical structures. As Hyland (2003) contended, the ability to create or recreate grammatically correct sentences does not generally indicate readiness to produce appropriate written texts. In addition, writing tasks in this approach are predominately subordinate to controlled practice, with fill-in-the-gaps, sentence completion and tense transformation tasks. Such repetitive activities are likely to discourage flexibility and reduce students’ motivation.

Regarding the matter of motivation, the title of the approach denotes that the emphasis is on the end result of the learning process. After learning the target grammar and lexis, students are expected to produce a final piece of writing that incorporates both of those aspects. The driving force of many learners' motivation in learning is manifested in their interest to reach the end product and receive feedback as soon as possible. Hence, the approach of focusing solely on the end product or outcome seems to be of little value to learners, for, as soon as their work is reviewed and assessed by the teacher, students are likely to leave behind the material and the knowledge because they were encouraged only by their grade.

Another idea supports the effectiveness of product-oriented pedagogy. As previously stated, this approach usually provides learners with written models drawn from different writing constructions of the so-called ‘genres’ (Harmer, 2004). Such a strategy may help learners recognize the peculiarities of a certain text in terms of syntactic patterns, vocabulary choices, and cohesive devices. So, when practising writing, learners will be able to identify and operate specific features of the text based on its relatedness to a certain genre or style, its formality or informality, and apply this subskill when analysing pieces of writing that contain similar or identical characteristics.

This other feature of product-based writing implies that the organisation of ideas in the text seems to be more important than the ideas themselves. The emphasis is put on how well the ideas are put together by learners, rather than on communicative content of writing. Learners are encouraged to organise their writing in a set of stages presented by the teacher and to replicate the model pattern in their own piece of writing. Consequently, the main indicator for “good” writing in this approach is the level of accuracy and clear exposition of ideas, but not their quality. On the one hand, this may be beneficial in helping learners stick to the required structure. On the other hand, by paying greater attention to the ‘backbone’ of the text, learners may neglect the creative aspect of writing and ignore the importance of idea development, which can improve their writing skills significantly.

A related feature maintains that the writing is performed following the pattern ‘controlled-guided-free’, suggesting that students first learn fixed patterns, then imitate the written model and finally make use of the patterns they have learned in order to complete the assigned writing. This process is logical and linear, however, provides little flexibility for both the learner and the teacher. The first two stages revolve around simply analysing, transforming and replicating the target patterns. This does not provide learners with much room for developing their own ideas, reducing their creative potential, which supports the idea mentioned in the paragraph above. Moreover, this process usually requires the production of a single-draft writing. Therefore, at the very last stage of the process, learners need to recollect and apply all the knowledge of structure, style grammar and lexis they have learned in the first two stages, trying not to omit any essential features.

Taken together, these ideas suggest that the main features of the product-based approach in writing include the pattern of controlled-guided-free writing, focus on the end product, model texts for learners to analyse and replicate and major emphasis on accuracy of exposition and organization of ideas. Taking into account both drawbacks and benefits of this approach, it can be considered helpful in an array of ways. For instance, product writing can be suitable in preparation for examinations and language proficiency tests such as IELTS and TOEFL which set strict frameworks for each stage that evaluates a particular skill. In this case, accuracy will serve as a great advantage in writing a good piece according to all requirements. Additionally, this approach can assist students in learning to produce a basic but grammatically correct piece of writing. Further implementing the process-based approach into the learning process can support

and foster the development of writing skills, along with creative thinking and idea development.

Such a combination of ideas and features appears to make the product-oriented approach reliable enough to take the place of one of the most practised and prevalent in the field of writing pedagogy.

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DIE ROLLE SOZIALER MEDIEN IM INFORMELLEN SPRACHENLERNEN

In der heutigen Zeit, in der die Vernetzung über das Internet ein integraler Bestandteil des täglichen Lebens ist, haben sich soziale Medienplattformen wie Twitter, Facebook und Instagram zu bedeutenden Instrumenten für das informelle Sprachenlernen entwickelt. Diese Plattformen bieten nicht nur Zugang zu einer Vielzahl von Sprachgemeinschaften, sondern fördern auch auf unkonventionelle Weise die Aneignung neuer Sprachen [2; S. 34].

Soziale Medien erlauben es den Nutzern, in Echtzeit mit Menschen aus aller Welt zu interagieren. Diese Interaktionen bieten authentische Spracheingaben, die im Gegensatz zu den traditionellen, oft skriptbasierten Lehrmethoden stehen. Auf Plattformen wie Facebook können Nutzer Gruppen beitreten, die sich speziell dem Sprachenlernen widmen. In solchen Gruppen werden oft Beiträge, Fragen und Antworten in der Zielsprache veröffentlicht, wodurch die Nutzer praktische Erfahrungen in der Anwendung der Sprache in realen Kontexten sammeln können [5; S. 219].

Instagram, bekannt für seine visuellen Inhalte, unterstützt das Sprachenlernen durch Beiträge, die oft mit Texten in verschiedenen Sprachen versehen sind. Durch das Betrachten von Bildern, die mit beschreibenden Texten in einer Fremdsprache annotiert sind, können Lernende nicht nur ihren Wortschatz erweitern, sondern auch

kulturelle Nuancen besser verstehen. Die Möglichkeit, Kommentare zu hinterlassen und Diskussionen zu führen, fördert zudem die schriftliche Kompetenz [3; S. 67].

Twitter bietet durch seine Kürze der Nachrichten eine einzigartige Form der Spracheingabe. Die Begrenzung auf 280 Zeichen zwingt die Nutzer dazu, sich präzise auszudrücken, was besonders für das Erlernen von Fremdsprachen von Vorteil sein kann. Die Schnellebigkeit von Twitter simuliert zudem Gesprächssituationen, in denen schnelle Reaktionen gefragt sind, und schult so die Fähigkeit, in der Zielsprache zu denken und zu kommunizieren [1; S. 21].

Die Natur der Spracheingabe auf sozialen Medien ist vielfältig und reicht von informellen Alltagsgesprächen bis hin zu mehr formalisierten Posts, die spezifisches Vokabular enthalten. Diese Bandbreite ermöglicht es Lernenden, sich mit einer Vielzahl von Sprachregistern vertraut zu machen, was für das umfassende Verständnis einer Sprache unerlässlich ist. Die ständige Verfügbarkeit und der niedrighschwellige Zugang zu diesen Plattformen erhöhen die Exposition gegenüber der Zielsprache, was ein kritisches Element für den Erwerb sprachlicher Fähigkeiten darstellt [4; S. 6].

Ein weiterer wesentlicher Aspekt des Sprachenlernens über soziale Medien ist die Möglichkeit zur Interaktion. Nutzer können direkt auf Posts antworten, Diskussionen führen oder sogar eigene Inhalte erstellen. Durch diese interaktiven Elemente wird nicht nur das Lesen und Schreiben in der Fremdsprache geübt, sondern es bietet auch Gelegenheiten, Feedback von Muttersprachlern zu erhalten. Dieses direkte Feedback ist besonders wertvoll, da es Lernenden ermöglicht, ihre Sprachkenntnisse kontinuierlich zu verbessern und Fehler sofort zu korrigieren [5; S. 225].

Die pädagogischen Implikationen dieser Art des Sprachenlernens sind bedeutend. Lehrkräfte können soziale Medien als Ergänzung zum traditionellen Sprachunterricht nutzen, indem sie Aufgaben stellen, die das Erkunden dieser Plattformen und das Interagieren in der Zielsprache beinhalten. Dies kann die Motivation der Lernenden steigern, da sie die Relevanz der Sprache in realen Kommunikationssituationen erkennen. Zudem fördert es die Selbstständigkeit der Lernenden, da sie eigeninitiativ und ihrem eigenen Tempo entsprechend lernen können [1; S. 28].

Die Nutzung sozialer Medien für das Sprachenlernen bringt jedoch auch Herausforderungen mit sich. Die Qualität der Spracheingaben kann variieren, und die Informalität mancher Kommunikationsformen auf diesen Plattformen kann zu Missverständnissen führen, besonders bei Anfängern. Darüber hinaus kann die überwältigende Menge an Informationen und die Schnellebigkeit der Kommunikation auf sozialen Medien auch zu einer Reizüberflutung führen, die das Lernen erschwert [5; S. 229].

Abschließend lässt sich sagen, dass soziale Medien eine wertvolle Ressource für das informelle Sprachenlernen darstellen. Sie ermöglichen den Zugang zu authentischen Sprachmaterialien und interkulturellen Erfahrungen, die außerhalb traditioneller Lernumgebungen schwer zu finden sind. Trotz der Herausforderungen, die diese Form des Lernens mit sich bringt, bieten die vielfältigen Interaktions-

möglichkeiten und die ständige Verfügbarkeit der Plattformen einzigartige Chancen, Sprachkenntnisse auf praktische und ansprechende Weise zu erweitern.

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THE ROLE OF FEEDBACK IN TECHNOLOGY-ENHANCED ENGLISH LANGUAGE TEACHING: TYPES, TIMING, AND IMPACT

The integration of technology in English Language Teaching (ELT) has significantly transformed the pedagogical landscape, altering not just how lessons are delivered but also how feedback is provided and received. This technological evolution has prompted educators and researchers alike to explore the nuances of feedback within digital learning environments. Specifically, the distinction between automated and human feedback, as well as the timing of these responses, plays a critical role in shaping language acquisition and learner motivation. This paper delves into these aspects, evaluating the effectiveness of various feedback mechanisms employed in technology-enhanced ELT [4; p. 1042].

Feedback in educational contexts is pivotal for learning, providing learners with insights into their performance and offering guidance on how to improve. In traditional classrooms, this feedback usually comes directly from the teacher, tailored to the individual's needs and often verbal. However, as digital platforms become more prevalent, the feedback landscape in ELT has expanded to include automated systems capable of delivering immediate responses [1; p. 67].

Automated feedback is primarily characterized by its immediacy and consistency, attributes that are highly valued in fast-paced, technology-driven learning environments. Language learning applications, for instance, utilize algorithms to assess a student's written or spoken input, providing quick corrections. This type of feedback is particularly effective for exercises involving clear right or wrong answers, such as vocabulary drills or grammar quizzes. The immediate correction helps reinforce learning points and correct mistakes in real time, potentially accelerating the learning process [3; p. 4].

However, the limitations of automated feedback become apparent when the learning objectives are more complex. While these systems excel in identifying overt errors, they lack the capacity to provide in-depth analysis or context-based feedback. For example, in tasks that require creative language use or higher-order thinking, such as essay writing or open conversation, automated feedback may not offer the nuanced insights that come from a human instructor [2; p. 327].

Human feedback, in contrast, involves more personalized interaction and is typically more flexible and context sensitive. Instructors can offer comprehensive insights that go beyond mere correctness, addressing issues like style, tone, and the appropriateness of language use. Furthermore, human feedback often includes motivational elements and emotional support, which are crucial for maintaining student engagement and perseverance [5; p. 5].

The primary drawback of human feedback in digital settings, however, is its lack of immediacy. Especially in asynchronous learning environments, feedback can be delayed, sometimes significantly, depending on the instructor's availability or the platform's scheduling. This delay can hinder the learning process, as students may struggle to connect the feedback with the specific content they submitted earlier [3; 10].

The timing of feedback is another critical factor in its effectiveness. Real-time feedback, whether automated or human, allows learners to immediately apply corrections and integrate learning points into their practice. This is particularly useful in language learning, where the goal is often to build and refine practical skills like speaking and writing [2; p. 328].

Delayed feedback, on the other hand, while less effective in reinforcing immediate corrections, provides an opportunity for more thoughtful reflection and in-depth analysis. It can be particularly beneficial for complex assignments where the learner benefits from spending more time reflecting on the feedback and integrating it into their knowledge base [5; p. 12].

The type and timing of feedback significantly influence not only language acquisition but also learner motivation. Immediate, automated feedback can boost confidence by providing quick wins and clear progress markers. It is particularly motivating for beginners who need frequent reassurance to stay engaged with the learning process. Conversely, the personalized nature of human feedback, even if delayed, can be more satisfying for advanced learners, who appreciate detailed insights into their use of language [1; 71].

In technology-enhanced ELT, both automated and human feedback play vital roles, each suited to different learning contexts and objectives. The choice between these types of feedback and their timing should be strategically made based on the specific learning outcomes desired and the nature of the task at hand. As technology continues to evolve, so too will the capabilities for delivering effective feedback. Future research and development will need to focus on optimizing these feedback mechanisms to better serve the diverse needs of learners, ultimately enhancing both their experience and outcomes in learning English.

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ASPECTS STYLISTIQUES DE LA PUBLICITÉ FRANÇAISE SUR LE MATÉRIEL DE LA CAMPAGNE PUBLICITAIRE "VIVEZ #LIKEABOSCH" DE BOSCH

Dans le monde numérique d'aujourd'hui, la publicité détermine les principales tendances du développement de la société et de l'économie. Ces avancées constantes font du domaine un laboratoire très actif pour ceux qui sont toujours prêts à relever des défis et à expérimenter. De nos jours, il ne suffit plus de montrer un produit, il faut que tout le monde en parle. Les spécialistes utilisent diverses techniques pour accroître la reconnaissance de la marque et se souvenir des téléspectateurs et des lecteurs.

L'objectif de l'étude est d'examiner les textes et les vidéos publicitaires pour en déterminer les aspects stylistiques.

La pertinence de la recherche réside dans le fait que le domaine de la publicité se développe à un rythme effréné et nécessite l'utilisation de procédés stylistiques pour améliorer la perception de la publicité.

L'objet de la recherche est la campagne publicitaire “Vivez #LikeABosch” de Bosch [1], à savoir du matériel publicitaire textuel et vidéo.

Dans notre société contemporaine, la publicité joue un rôle central en façonnant les perceptions du public, en influençant le comportement des consommateurs et en stimulant l'engagement envers la marque. Les publicités sont perçues comme comportant potentiellement des concepts complexes d'audience, ce qui nécessite que les lecteurs s'efforcent de déchiffrer le message et de comprendre les diverses relations [2 p. 10]. Cela représente un moyen efficace pour les organisations, les individus et les causes d'accroître leur visibilité et leur réputation.

Il est très essentiel de comprendre le consommateur et de connaître son comportement et ses habitudes. Une perspective saine sur ces concepts aidera à produire de nouvelles idées qui mèneront à de bons résultats [3 p. 21].

Les campagnes publicitaires efficaces exploitent la narration, les éléments visuels et les messages convaincants pour capter l'attention et créer un impact durable. La publicité ne se limite pas à la publicité commerciale de produits de marque, mais peut aussi inclure des textes visant à améliorer l'image d'une personne, d'un groupe ou d'une organisation [2 p. 10].

Bosch est une entreprise allemande d'ingénierie et de technologie branchée. Tout a commencé en 1886, lorsque Robert Bosch créa un atelier de mécanique de précision et d'électrotechnique. Aujourd'hui, ils sont un acteur majeur sur la scène mondiale de la technologie et des services.

Leur campagne “Vivez #LikeABosch” est un phénomène très attirant. Grâce à des méthodes de narration innovantes et des effets visuels passionnants, la campagne a capté l'attention du public cible sur plusieurs plateformes. Elle a connu un succès en augmentant la visibilité de la marque et en accroissant l'engagement des clients. Finalement, ils ont pu augmenter leurs ventes et leurs revenus. Bosch a réussi à mener une campagne performante grâce à une planification minutieuse, une approche créative et un travail extraordinaire. Ils ont présenté les atouts de leurs appareils électriques et ont réussi à les promouvoir.

Cette campagne publicitaire est intéressante d'un point de vue linguistique, pas seulement d'un point de vue marketing. Chaque mot et chaque expression de la campagne touche réellement le public, ce qui rend le message globalement plus efficace.

Le choix de la forme du discours affecte directement la perception de la publicité. La décision sur le slogan est un point clé, car selon Olivier Reboul, un slogan est une formule concise et impressionnante conçue pour amener les êtres humains à agir sur son style et sur les éléments cachés qu'elle contient [4 p. 42].

Le slogan “Vivez #LikeABosch” contient un hashtag et des mots anglais, ce qui ajoute de la modernité et un attrait global à la communication. L'intégration de mots et de phrases anglais donne au message une touche dynamique et cosmopolite, soulignant la présence internationale. Le slogan lui-même est une association avec le célèbre

slogan ‘ Like a Boss’, qui porte un caractère confiant et autoritaire, c'est pourquoi le slogan lui-même a le message “Vivez de manière responsable et dominez !”.

En analysant le contenu de l'expression “#LikeABosch” elle-même, le mot *Like* peut avoir un double sens : *Comme* et *Aimez*. Ainsi, d'un autre côté, cette phrase a un attrait caché pour une attitude positive envers les produits de la marque Bosch. Les Français sont plus attirés par les impressions, et en France, en même temps qu'on vend une marque, on vend l'acte de publicité et l'idée [3 p. 4-7].

Le texte publicitaire contient de nombreux mots impératifs qui encouragent l'action : *découvrez, consommez, remplissez, faites, séchez, fini* etc. Bosch s'adresse à son public à la deuxième personne du pluriel, p.ex. *Vous ne pouvez pas arrêter le temps, mais lorsqu'il s'agit de vos plats préférés, vous pouvez au moins le ralentir !* Cela augmente l'efficacité du message publicitaire, car les gens réagissent souvent positivement à une approche personnelle et à un sentiment d'attention à leurs besoins et désirs. Tandis que Bosch parle de son produit en utilisant la première personne du pluriel ce qui permet de renforcer le lien entre l'entreprise et le public, en l'intégrant à la communauté, p.ex. *grâce à nos spacieux réfrigérateurs XXL équipés de portes françaises; notre mixeur plongeant ErgoMaster Série 6 offre des résultats de mixage parfaits; nos tables de cuisson induction aspirantes Bosch offrent la dernière technologie .*

La publicité “Vivez #LikeABosh” utilise des images et des symboles, ainsi que des éléments visuels qui peuvent amener le public à percevoir l'information souhaitée ou à créer certaines associations. Les couleurs de l'échelle d'efficacité énergétique sont souvent vues dans la vidéo, notamment sur des t-shirts et des assiettes aux couleurs correspondantes lors de la présentation respectivement du lave-linge et du lave-vaisselle. La couleur favorise le processus de traitement de l'information [5 p. 115], c'est pourquoi la couleur verte prévaut dans la plupart des cadres en symbolisant une haute efficacité énergétique.

Dans le texte publicitaire, il existe des procédés stylistiques utilisés dans un but d'expressivité, renforçant l'impact émotionnel et créant un niveau de perception plus profond du texte. Parmi eux figurent les suivants :

- l'épithète.
p. ex : *effréné, efficace, croustillant, préféré, parfait, excellente.*
- la métaphore. Les métaphores peuvent considérablement accroître les chances d'acceptation du message [5 p. 116].
p. ex : *#LikeABosch, donner vie à, plats succulents, un trait d'huile, arrêter le temps, ralentir le temps, héros de quotidien.*
- l'hyperbole. L'utilisation de l'hyperbole, autrement l'exagération, dans les publicités permet d'obtenir un traitement de l'information plus approfondi [5 p. 342].
p. ex : *ultra-efficace, héro de quotidien.*
- la personnification.
p. ex : *Nos technologies aident, les appareils électroménagers accompagnent au quotidien, les appareils Bosch offrent une alimentation saine, le sèche-linge élimine la peluche.*
- l'antithèse.

p. ex : *moins de gaspillage alimentaire, plus de saveur en bouche ; 100 % satisfait ou 100 % remboursé.*

- l'allitération.

p. ex : *dans des conditions, propose des produits pensés par, à lessive et à assouplissant, surdosage et le cycle de rinçage, reste du réfrigérateur, proposer des produits.*

- l'assonance.

p. ex : *nos technologies ont, pour tous partout, saine et pleine, qui utilise, aidant à adapter.*

- l'inversion.

p. ex : *De votre linge à votre vaisselle en passant par vos produits frais, achetez des appareils électroménagers Bosch qui vous accompagnent au quotidien pour économiser vos ressources et éviter le gaspillage alimentaire ; Avec le sous-vide, devenez un héros du quotidien en réduisant le gaspillage alimentaire.*

- l'épiphore. Epiphora est utilisé pour améliorer l'expressivité et la signification. [6 p. 40]

p. ex : Dans la vidéo, chaque phrase se termine par la phrase '#LikeABosch'.

- les questions rhétoriques.

p. ex : *E vous, souhaitez-vous rejoindre le mouvement ?*

Conclusion: L'intégration des éléments stylistiques est une composante essentielle des campagnes publicitaires de marques renommées. Ils sont impliqués afin de créer un message efficace auprès du public cible, créant un lien émotionnel entre l'entreprise et le client. À l'aide de diverses techniques linguistiques, le texte peut devenir plus attrayant, ce qui contribue à une meilleure reconnaissance de la marque. L'étude des aspects stylistiques est une direction moderne de la recherche linguistique. L'analyse de ces aspects dans la publicité étrangère aidera les linguistes ukrainiens à acquérir de l'expérience en matière d'influence linguistique sur les acheteurs potentiels, car la publicité est aussi une forme de communication.

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ANALYSE LINGUISTIQUE COMPARATIVE DES IDIOMES FRANÇAIS ET ANGLAIS AVEC LES NOMS DE PARTIES DU CORPS

Les unités phraséologiques ou idiomes sont un décor et révèlent la richesse de chaque langue. Ils rendent le discours oral et les textes écrits plus sophistiqués, plus riches et plus intéressants. Le français et l'anglais ne font pas exception. Leur fonds phraséologique est très diversifié et mérite d'être étudié. Dans cet article, nous examinerons 100 unités phraséologiques en français et 100 de leurs équivalents anglais. L'objectif de l'étude est d'analyser 100 idiomes portant des noms de parties du corps en anglais et en français pour déterminer leur similitude dans les deux langues. Nous comparerons la manière dont des expressions similaires sont utilisées par les locuteurs de ces deux langues pour décrire les mêmes concepts. La recherche a été effectuée sur la base des unités phraséologiques placées dans les dictionnaires électroniques Expressio.fr [2], Cambridge Dictionary [4], Collins Dictionary [3], ainsi que sur la base d'autres ressources Internet [1, 8].

La pertinence de la recherche réside dans le fait que les constructions idiomatiques françaises et anglaises, notamment avec des composants de parties du corps, sont activement utilisées dans le discours des locuteurs natifs, ainsi que dans la littérature, les actualités et d'autres textes. Par conséquent, la connaissance et la compréhension de ces expressions idiomatiques sont importantes pour le succès du travail des linguistes et des traducteurs. De plus, une comparaison des expressions idiomatiques en anglais et en français aidera à mieux analyser et comprendre la différence de vision du monde et de mentalité des deux peuples.

Des chercheurs tels que O. Tkachova qui s'est concentré sur leur composante gastronomique, H. Rabosh qui a écrit sur la refonte des composantes des expressions phraséologiques, et T. Lanovenko qui a analysé les manières de traduire les unités phraséologiques françaises en ukrainien sur la base de l'art moderne, ont déjà travaillé sur l'analyse des unités phraséologiques françaises, de la littérature, etc. Le sujet de la phraséologie anglaise et française pour les concepts de santé et de maladie a également été abordé par R. Strilets qui a également examiné les proverbes pertinents et la compatibilité des mots « santé » et « maladie » avec d'autres parties du discours dans les thésaurus et dictionnaires. La chercheuse tchèque M. Nemtsova a également travaillé sur le thème de la comparaison des expressions idiomatiques françaises et anglaises, en divisant les 140 unités phraséologiques collectées en groupes en fonction de leur similitude. Cependant, elle n'a analysé que les idiomes comportant les composants «la main», «la jambe» et «la tête». En sciences nationales, le sujet de la comparaison de la phraséologie anglaise et française spécifiquement avec les composants des parties du corps n'a pas encore été révélé en détail.

En travaillant sur la collecte et l'analyse de 100 idiomes avec des composants de parties du corps, nous avons décidé de les diviser en trois groupes: ceux qui sont

complètement identiques dans le sens des composants en français et en anglais; ceux dont la signification est partiellement identique; et ceux qui n'ont pas d'équivalent dans la langue cible (anglais ou français) ou dont les composants individuels ont une signification complètement différente.

Au total, nous avons 21 unités phraséologiques complètement identiques. 25 idiomes de sens similaire et des unités phraséologiques qui ont un sens complètement différent ou qui n'ont pas d'équivalent dans la langue traduite, nous en avons obtenu le plus – 54.

Les expressions idiomatiques suivantes sont complètement identiques en termes de composants:

1. se mordre la langue – to bite your tongue – прикусити язика;
2. je l'ai sur le bout de la langue – it is on the tip of my tongue – щось крутиться на язичці;
3. être tout oreilles – to be all ears – насторожувати вуха;
4. avoir la tête dans les nuages – to have one's head in the clouds – витати в хмарах;
5. apprendre qch par cœur – to learn sth. by heart – вивчити щось напам'ять;
6. il faudra d'abord me passer sur le corps – over my dead body – через мій труп;
7. taper dans le dos – to pat on the back – гладити по голові;
8. se laver les mains de qch – to wash one's hands of something – умити руки;
9. tout ça, c'est dans ta tête – all in your head – всі проблеми у твоїй голові;
10. être armé jusqu'aux dents – armed to the teeth – озброєний до зубів;
11. derrière le dos (de qqn) – behind somebody's back – за чиєюсь спиною;
12. être né avec une cuillère d'argent dans la bouche – to be born with a silver spoon in your mouth – бути з багатої сім'ї;
13. forcer la main de qn – to force someone's hand – наступати на горло;
14. long (longue) comme le bras – as long as your arm – довжелезний;
15. être le cerveau de qch – to be the brains of sth – стояти за чимось;
16. se creuser la cervelle – to rack one's brains – мозок сушити;
17. être le nom qui est sur toutes les lèvres – to be the name that is on everyone's lips – бути ім'ям у всіх на устах;
18. avoir du sang bleu – to have blue blood – мати блакитну кров;
19. avoir les yeux plus gros que le ventre – to have eyes bigger than one's stomach – наїстися від пуза;
20. bouche bée – open-mouthed – зробити великі очі;
21. croisons les doigts – fingers crossed – тримати кулачки.

Les expressions idiomatiques suivantes ont une signification similaire à celle des composants:

1. avoir le cœur sur la main чи avoir le coeur (mis) à nu – to wear your heart on your sleeve – серце на долоні;
2. se creuser la tête – to rack one's brains – сушити голову;
3. mettre le pied à l'étrier – to get a foot on the ladder – почати щось з нуля;
4. prendre son courage à deux mains – to pluck up the courage – набратися сміливості;

5. écumer de rage – foam at the mouth – пінитися від злості;
6. une tape sur les doigts – a slap on the wrist – нам'яти комусь вуха;
7. tenir qn à distance – to keep at arm's length – тримати когось на відстані;
8. de tête – off the top of one's head – з голови;
9. garder la tête haute – to keep one's chin up – високо тримати голову;
10. avoir des fourmis dans les pieds – to have itchy feet – не сидітися;
11. le bras de la justice – long arm of the law – вартові закону;
12. le vieux routier – old hand at sth – стріляний горобець;
13. avoir un faible pour les sucreries – to have a sweet tooth – мати пристрасть до солодощів;
14. la chair de sa chair – one's own flesh and blood – чиясь плоть і кров;
15. donner un coup de main à qn – to give/lend a hand – подати комусь руку;
16. voir les choses du même oeil – to see eye to eye – дивитися одними очима;
17. à pleins poumons – at the top of your lungs – на все горло;
18. souffler votre esprit – to blow your mind – замарити голову;
19. de bouche à oreille – by word of mouth – черезтинне радіо;
20. avoir le compas dans l'œil – to have an accurate eye – не ловити гав;
21. avoir le nez dans le guidon – to keep one's nose to the grindstone – гріти чуба;
22. avoir les chevilles qui enflent – to have a swelled/swollen head – гнути кирпичу;
23. avoir un chat dans la gorge – to have a frog in one's throat – дере в горлі;
24. couper les cheveux en quatre – to split hairs – дулі в'язати;
25. faire grise mine – to make a long face – скривитися як середя на п'ятницю.

Les paires d'expressions idiomatiques qui n'ont pas d'équivalent dans la langue cible ou dont les composants ont des significations complètement différentes sont répertoriées ci-dessous:

1. ne pas avoir la langue dans sa poche – to be never at a loss for words – пальця в рот не клади;
2. rebattre les oreilles – to harp on about something – лити воду;
3. les doigts dans le nez – with one hand tied behind your back – раз плюнути;
4. prendre ses jambes à son cou – to run for your life – наживати п'ятами;
5. avoir le bras long – to be well-connected – мати свою руку;
6. coûter les yeux de la tête – to cost an arm and a leg – на вагу золота;
7. sauter aux yeux – to be blindingly obvious – ясно як сонце ясне;
8. manger sur la pouce – to eat on the run – їсти на ходу;
9. dormir sur ses deux oreilles – to sleep soundly – спати без задних ніг;
10. avoir les dents qui rayent le parquet – to be power hungry – бути готовим вовка з'їсти;
11. avoir un cheveu sur la langue – to lisp – шепелявити;
12. être follement amoureux/euse – to be head over heels in love – бути закоханим по вуха;
13. en vouloir à tout le monde – to have a chip on one's shoulder – затаювати образу;
14. faire appel aux lumières de qn – to pick someone's brain about sth – удаватися за порадою до когось;

15. être la croix et la bannière – like pulling teeth – Гордіїв вузол;
16. battre froid à qn – to give someone the cold shoulder – дати відкоша;
17. avoir de la place pour se retourner – to have enough elbow room – є, де розвернутися;
18. accrocheur/euse – eye-catching – впадати у вічі;
19. bonne chance – to break a leg – ні пуху ні пера;
20. être moins chaud pour qch – to have/get cold feet – набратися страху;
21. pleurer toutes les larmes de son corps – to cry one's eyes out – відволожити серце сльозами;
22. un avantage dès le départ – head start – козир;
23. être complètement dépassé(e) – to be in over one's head – втрапити в тенета;
24. surveiller quelque chose – to keep an eye on something – не спускати очей;
25. se laisser aller – let one's hair down – не дотримуватись правил;
26. motus et bouche cousue – (one's) lips are sealed – уста на замку;
27. échauffer la bile de quelqu'un – to make one's blood boil – допекти до живих печінок;
28. le coin – neck of the woods – місцина;
29. improviser – to play something by ear – імпровізувати;
30. faire marcher qn – to pull one's leg – морочити комусь голову;
31. à vue de nez – by rule of thumb – як правило;
32. de justesse – (by the) skin of one's teeth – насили;
33. trop s'avancer – to stick one's neck out – гратися з вогнем;
34. bouché – thick in the head – мідний лоб;
35. à couteaux tirés – at each other's throats – жити, як кішка з собакою;
36. dormir à poings fermés – to sleep very soundly – давати хропака;
37. se fourrer le doigt dans l'œil – to be kidding yourself – помилятися;
38. arriver comme un cheveu sur la soupe – to be completely irrelevant – вискочити, як Марко з конопель;
39. quand les poules auront des dents – when pigs fly – як виросте трава на помості;
40. avoir un poil dans la main – to be extremely lazy – бити байдики;
41. avoir une dent contre quelqu'un – to hold a grudge against someone – мати зуб на когось;
42. bien dans sa peau – comfortable with oneself – як риба у воді;
43. bourrer le crâne – to brainwash – промивати мозок;
44. casser les pieds – to annoy / bore someone – забивати памороки;
45. c'est le pied – it's great – це чудово;
46. chercher des poux dans la tête – to search for any reason to argue – шукати кістки в молоці;
47. donner sa langue au chat – to stop guessing – здаватися;
48. faire la tête – to sulk – мов у воду опущений;
49. faire qqch les doigts dans le nez – to do something very easily – як Сіркові муху з'їсти;
50. mon œil – not at all – нема дурних;

51. tiré par les cheveux – far-fetched – притягнутий за вуха;
52. tourner sept fois sa langue dans sa bouche – to think long and hard (before speaking) – сім разів відмір – один раз відріж;
53. vendre la peau de l'ours (avant de l'avoir tué) – to count one's chickens (before they're hatched) – ділити шкуру невбитого ведмедя;
54. mettre les pieds dans le plat – to speak too frankly – лебедя рубати.

Considérant un si grand nombre d'idiomes, dont les composantes diffèrent les unes des autres, mais expriment le même concept, nous pouvons conclure que la phraséologie anglaise et française sont très différentes l'une de l'autre et que les anglophones et les francophones ont une vision assez différente du monde.

La chercheuse susmentionnée, M. Nemtsova, est arrivée à une conclusion similaire. 54% des 140 idiomes collectés par elle ont un sens commun, mais sont complètement différents dans leurs composants lexicaux et ont une structure syntaxique différente. Bien que nous ayons analysé uniquement la composante lexicale des idiomes, nous avons également obtenu 54% d'unités phraséologiques qui diffèrent les unes des autres.

Nous voyons la raison d'une différence si significative dans le fait que l'anglais et le français appartiennent à des groupes linguistiques différents (sous-groupe germanique – germanique occidental et sous-groupe roman – gallo-roman). Ces langues sont donc comme des civilisations différentes.

Mais malgré cela, les langues anglaise et française possèdent une couche d'idiomes totalement ou partiellement identiques. Nous pensons que cela est dû au fait qu'ils font tous deux partie de la famille des langues indo-européennes. De plus, la Grande-Bretagne et la France sont des pays voisins et ont une longue histoire d'échanges culturels au fil des siècles. De plus, ce sont tous deux des pays européens et ont une culture similaire et une religion commune (les unités phraséologiques issues de la mythologie grecque ou de la Bible sont donc identiques dans ces deux langues).

Ainsi, à partir de nos recherches, nous affirmons que la phraséologie anglaise et française présente à la fois des différences et des similitudes. Connaître ces fonctionnalités permet de mieux comprendre la logique et la profondeur des deux langues. Cette étude peut servir de base à une exploration plus approfondie des unités phraséologiques avec d'autres composantes qui n'ont pas été étudiées auparavant dans la paire linguistique français – anglais.

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MODERN PRINCIPLES OF MANAGEMENT AND THEIR CHARACTERISTICS

In today's rapidly changing business environment, characterized by instability and constant challenges, successful management of an organization becomes a key factor for its competitiveness and survival. To achieve these goals, it is important to consider not only traditional management principles but also the ability to adapt to modern demands and trends. Thus, there is a necessity for researching and implementing contemporary management principles that correspond to the current realities of business.

Main management principles:

1. Flexibility and adaptability. In modern management, flexibility and adaptability are principles that recognize the necessity for organizations to adapt to changes in both their internal and external environments. This entails readiness to quickly respond to new conditions, technologies, and market demands. Flexibility involves an organization's ability to change its strategy, processes, structure, and culture to achieve maximum efficiency and competitiveness. Adaptability means the ability to react to changes in the organization's internal environment, such as changes in personnel, technologies, processes, etc., as well as external factors such as changes in market demands, legislation, competition, etc. Flexibility and adaptability enable organizations to be more competitive and successful in conditions of constant change.

The modern business environment is rapidly changing, so organizations need to be flexible and quickly adapt to new conditions. Flexibility allows organizations to effectively respond to changes in market conditions, customer requirements, and technological innovations.

2. Strategic thinking. One of the important principles that recognize the significance of long-term planning and analysis for achieving the goals and success of an organization is strategic thinking. This principle entails understanding the objectives, strategies, and actions necessary for the future development of the business. Strategic thinking guides managers in identifying key success factors, as well as analyzing the external and internal environment to determine the optimal path for development. It also supports ongoing monitoring and review of strategies to adapt to changes in the environment and achieve set goals. Strategic thinking helps organizations maintain a competitive advantage and ensures their resilience in the long term. Developing and implementing strategies is crucial for achieving competitive advantage and ensuring the success of the organization in the long term.

3. Development and support of personnel. In modern management it is a principle that emphasizes the importance of investing in the development of skills and ensuring the well-being of employees. This principle involves the development of training and development programs that contribute to the enhancement of professional skills and increased effectiveness of personnel. Additionally, it means creating a conducive work environment where employees feel valued and have the opportunity for personal and professional growth. Development and support of personnel also include providing opportunities for career advancement, mentoring, and ensuring a work-life balance. This principle helps to attract and retain talented employees, enhances their productivity, and contributes to achieving the organization's strategic goals. Personnel are a key resource for any organization, so it is important to invest in their development and satisfaction. Satisfied and motivated personnel contribute to increased productivity and reduced staff turnover [3, c. 25].

4. Innovation and technological progress. This is an important principle that recognizes the significance of continuous improvement of processes, products, and services to ensure the competitiveness of the organization in the market. This principle involves stimulating and supporting innovative thinking among employees, continuous research and implementation of cutting-edge technologies, as well as collaboration with partners and external parties for knowledge and ideas exchange. Innovations and technological progress enable enterprises to maintain a competitive advantage, grow, and take leadership positions in their industries. Innovation is key to the sustainable development of an organization. Implementing innovative ideas and technologies helps improve process efficiency and product competitiveness. Using advanced technologies allows organizations to stay ahead and compete effectively in the market.

5. Collaboration and communication. In modern management, this principle emphasizes the importance of effective communication and collaboration across all levels of the organization. This principle involves creating an open atmosphere where employees can freely exchange ideas, thoughts, and information. Additionally, it promotes the establishment of effective communication channels and mechanisms that

facilitate the development of mutual understanding, support for teamwork, and resolution of conflicts. Collaboration and communication help increase the efficiency of organizational work, improve relationships between employees, and achieve common goals. Internal collaboration and open communication between different departments of the organization contribute to problem-solving and achieving common goals. External communication with customers, partners, and other stakeholders is important for maintaining reputation and creating a positive image of the organization.

6. Leadership. The principle that recognizes the importance of developing leadership qualities in managers and foster their successful influence on the team and the organization as a whole. Leadership entails not only the ability to lead and motivate people but also the ability to show empathy, foster collaboration, make important decisions, and resolve conflicts. The modern approach to leadership emphasizes the importance of understanding the needs and motivations of subordinates, as well as the continuous self-improvement of the leader. Effective leadership contributes to the creation of a motivated and productive team that achieves success in reaching the organization's goals. Effective leadership can stimulate and motivate employees to achieve high results, increasing their productivity and engagement in work. Good leadership fosters the creation of an open and trusting environment where employees can freely express their ideas and opinions, fostering innovation and better organizational development [2, с. 3].

Utilizing modern management principles helps organizations not only survive in a competitive environment but also successfully develop and achieve high results in their activities [1, с. 2].

In conclusion, modern management principles reflect contemporary trends and business requirements aimed at achieving efficiency, innovation, and resilience of organizations. Flexibility and adaptability enable organizations to quickly respond to changes in the environment. Strategic thinking helps develop and implement strategies capable of providing a competitive advantage. The development and support of personnel stimulate high productivity and employee engagement. Innovations and technological progress allow organizations to remain competitive. Collaboration and communication contribute to building an open and trusting environment. Considering these principles helps organizations achieve success and ensure sustainable development in today's business environment.

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MODERN APPROACHES TO MANAGEMENT

Modern management requires constant updating and adaptation to changes in the ever-evolving business environment. In the conditions of rapid pace of technological development, globalization and changes in consumer preferences, organizations have to look for new management approaches to achieve success and competitive advantage.

Modern approaches to management are marked not only by innovation in methods and approaches, but also by understanding the importance of human capital, digital transformation, social responsibility and sustainable development. Today's leaders and managers must be prepared for the challenges and changes that are imposed on their organizations and constantly develop their knowledge and skills to manage effectively in an environment of uncertainty and complex challenges.

In this study, we will consider the most relevant and promising modern approaches to management, as well as their effects on the business environment and organizational culture. We will consider key aspects of general management, design thinking, digital transformation, change management, social responsibility of business and much more. By revealing these topics, we will contribute to the understanding of how modern approaches to management help organizations achieve their strategic goals, develop and become successful in their activities.[2]

The overall approach to management includes recognizing the variability of the achievement of the modern business environment and the need to quickly respond to changes, increasing the flexibility and adaptability of organizations through iterative development and continuous improvement of processes, focusing on team collaboration and interaction with customers for common goals.

Design-projecting in management includes focusing on the needs and preferences of users as a basis for developing products and services, using innovative methods and tools to create new solutions, constantly testing and involving users in the development process to generate feedback and improve products.

Change and innovation management includes stimulating creativity and innovation in the organization by creating a stimulating environment and supporting idea initiatives, implementing flexible structures and processes that facilitate rapid adaptation to change, involving personnel in the change process and creating communication channels for interaction and joint problem solving .

Social responsibility of business includes the integration of ethical and social principles into the organization's strategy and activities, development of programs and initiatives in the field of sustainable development, environmental protection and social responsibility, involvement of stakeholders and community development.

[1, c. 2]

Modern approaches to management play a key role in the success of modern organizations in a competitive business environment. They are aimed at increasing efficiency, flexibility and innovation in management so that organizations can successfully adapt to changes and achieve their strategic goals. Global approach, design thinking, digital transformation, change management and social responsibility are just some of the key areas shaping the modern face of management. A balanced approach to their use allows organizations to become more competitive and respond to changing business and market conditions. Thus, the use of modern approaches to management is an important component of the success of modern enterprises in the modern world.

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THE MAIN PROVISIONS OF A. FAYOL'S CONCEPT IN MANAGEMENT

In the modern world, where speed, efficiency, and productivity are key factors of success, effective time and resource management is becoming increasingly important. This is particularly crucial in the context of management, where leaders must be able to properly allocate their time among various tasks and priorities. One important tool that helps managers better organize their work is the concept of A. Fayol. This concept provides a framework for classifying tasks according to their importance and priority, allowing managers to effectively manage their time and attention.

Henri Fayol (1841–1925) was a French engineer and scientist. After graduating from mining school in 1860, he began working at a large metallurgical conglomerate, where he later became the general manager. In this conglomerate, Fayol developed and implemented a streamlined production management system. At the core of this system was an administrative doctrine that defined the essence of administrative functions, their purpose, principles of administrative management, and so on. Fayol's main theoretical conclusions regarding the improvement of management are set out in his book "General and Industrial Management" (1916). His works "Scientific Organization of Labor" and "Positive Management" are also well known.[1]

Fayol's concept was based on the premise that every enterprise has two organisms: material and social. The former includes labor itself, labor resources, and

labor objects collectively, while the latter refers to people's relationships in the labor process. These relationships became the subject of Fayol's research.

He sought to justify the necessity and possibility of creating a special science of human management as part of the general science of enterprise management.

According to Fayol, management means leading the enterprise to its goal by leveraging the capabilities of all available resources.

In Fayol's view, administration is part of management, which includes six main groups of management activities:

1. technical and technological (production, manufacturing, processing);
2. commercial (procurement, sales, exchange);
3. financial (raising capital and effective management of it);
4. security (property and personal protection);
5. accounting (inventory, balance sheets, production costs, statistics);
6. administrative (forecasting, organization, command, coordination, and control) [2, c. 2].

In the world of management and organizational development, there are key principles that help managers effectively organize their work and achieve goals. One of the most important sets of such principles is the concept of A. Fayol. These principles have become the basis for many companies and are recognized as essential for success. The scholar formulated 14 fundamental principles:

1. Division of labor: specialization is natural. The goal is to perform larger and higher-quality tasks with less effort.
2. Authority and responsibility: authority is the right to give orders, responsibility is its counterpart.
3. Discipline: obedience and respect for agreements between the company and its employees.
4. Unity of command: workers receive orders from only one immediate supervisor.
5. Unity of direction: groups acting towards a single goal should have one plan and one leader.
6. Subordination of individual interests to the general interest: the interests of one should not outweigh those of the organization.
7. Remuneration: fair pay for service to ensure loyalty and support for the organization's policy.
8. Centralization: a natural state, but the degree varies depending on specific conditions.
9. Scalar chain (hierarchy): a chain of command from top to bottom.
10. Order: everything has its place.
11. Equity: a combination of kindness and justice.
12. Stability of tenure of personnel: high turnover reduces organizational efficiency.
13. Initiative: developing and implementing plans adds strength and energy to the organization.

14. Esprit de corps: harmony among personnel is a source of strength [2, c. 3].

Thus, A. Fayol's concept reflects a set of key principles that are important for successful management and organization of work processes in the modern business environment. These principles define fundamental approaches to task allocation, defining authority and responsibility, ensuring discipline, promoting unity of direction and corporate spirit, and other aspects necessary for successful organizational operation. The application of these principles can contribute to increased efficiency of team work, improved interaction between employees and management, and achievement of strategic goals of the company. Thus, the use of A. Fayol's principles can pave the way for successful functioning of the organization and achievement of stable development in a dynamic business world.

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THE INTERSECTION OF VIRTUAL REALITY AND CONTEMPORARY ART: EXPLORING NEW DIMENSIONS

This study aims to investigate the convergence of virtual reality and contemporary art, exploring the innovative avenues, creative expressions, and transformative potential arising from their intersection. The research identifies how virtual reality changes the creation, perception, and interpretation of art, and explores the opportunities it opens up for contemporary artists.

The inevitable evolution of art education involves the integration of virtual reality (VR), which intertwines technology with the sacred domains of artistic expression. Virtual Reality transcends being just a canvas; it serves as an alternate dimension where the artist's expression extends boundlessly. Art, being a profound cornerstone of human culture, transcends epochs by capturing emotions, documenting history, and fostering intergenerational communication. Virtual reality introduces groundbreaking changes into the artistic realm, granting artists a fresh perspective and revolutionizing both art education and preservation methods [2, c.18]. In the era of virtual reality, pixels blend seamlessly with imagination, offering novel paths for artistic expression and fundamentally reshaping the approaches to teaching and conserving art. The fusion of art and technology is transforming the creative terrain, providing fresh pathways for expression and engagement. For artists, technology has

evolved into a vital tool, enabling the exploration of novel concepts and emotions. This merging signifies a significant change in how art is perceived and experienced, erasing the boundaries between conventional spheres [3, c.13].

Virtual Reality (VR) in education offers a significant advantage by democratizing access to learning. VR breaks down geographic, economic, and physical barriers, providing every student with equal access to the world's finest art. Virtual classrooms become inclusive spaces, ensuring that art education is accessible to all, regardless of background or circumstance. To understand the concept of interactive installations fully, it's essential to examine notable instances. Examples like "Rain Room" by Random International and "The Treachery of Sanctuary" by Chris Milk demonstrate the innovative use of technology and interactivity in art. These installations showcase how technology blurs the line between reality and illusion, pushing the boundaries of creativity and engaging audiences in new ways [3, c.9]. The emergence of interactive installations marks a substantial transformation within the art realm, where the merging of technology and creativity engenders immersive, participatory, and transformative encounters. Additional investigation is warranted to comprehend the influence of interactive installations on the artistic landscape and the innovators spearheading this progressive mode of artistic expression.

VR museums transcend geographical boundaries, offering access to art for a global audience. VR enhances accessibility, providing tailored experiences for individuals with disabilities and making art a universal language. VR museums encourage active participation, blurring the line between observer and observed. Visitors can interact with artworks, contributing to the creative process and fostering deeper engagement. VR museums play a vital role in preserving cultural heritage by digitally recreating fragile artifacts and historical monuments [3 c.17]. This preservation effort ensures that future generations can explore and appreciate cultural treasures. Despite opportunities, VR museums face challenges such as technological limitations and ethical considerations. Addressing these challenges is crucial for harnessing the full potential of VR technology. With advancements in VR technology, we can expect more innovative and immersive art experiences. Collaborations between artists, technologists, and educators will lead to new forms of interdisciplinary artworks [3, c.39]. VR museums bridge the gap between art and technology, enriching perspectives and inspiring creativity. Through this fusion of tangible and virtual realms, art thrives, inviting exploration and offering boundless possibilities [1, c.27].

So, the fusion of Virtual Reality (VR) with art education and preservation heralds a new era characterized by enhanced accessibility, interactivity, and engagement. Embracing and investing in VR technologies is essential as they play a crucial role in safeguarding and transmitting our cultural heritage to future generations. Virtual Reality serves not only as a gateway to novel experiences but also ensures that the art of the past continues to be relevant and integral to our future endeavors.

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UNIVERSITY OF THE THIRD AGE IN THE CITY OF KHMELNYTSKYI

This study is carried out to get acquainted with the University of the Third Age, located in Khmelnytskyi, its objectives, methods and features.

The University of the Third age is located on the basis of the territorial center of social services, which is at 7-A Peremoha Street, room 18. In addition to the main branch, there are several branches located at 38 Kamianetska Street and 3/2 Zarichanska Street.

The university has been operating at the Khmelnytskyi City Territorial Center for Social Services since 2017. It was then that the Khmelnytskyi City Council, by its decision, approved the Procedure and conditions for the provision of social and pedagogical services "University of the Third Age" [3].

"Despite the fact that I am retired, I want to develop, learn about other aspects of social life, communication, and in our still difficult time, psychology is extremely necessary," comments Natalia, a student, who conveys the importance of the existence of projects such as this one [2].

The requirements for admission to this university are the presence of a pension certificate, passport, certificate of an internally displaced person or if the person is lonely. The minimum age for men is 60 years old, and for women - 50 years old.

In general, the purpose of the service is to implement the principle of lifelong learning for older people and support their physical, psychological and social abilities. At the University of the Third Age, students acquire new knowledge and share their own, spend their free time with benefit, expand their circle of friends and find like-minded people, and actively spend their leisure time.

In 2023, the university had 1950 students, and so far this is a record number.

There are 23 faculties, the most popular of which are the study of foreign languages, the study of psychology, the basics of health care, health aerobics and fitness. The students also learn how to use a smartphone and office equipment, engage in activities and visit creative faculties. In 2023, UTA students took part in the All-Ukrainian radio dictation of national unity and showed excellent results, and the national amateur volunteer choir "Yednist" as part of UTA students won the III place

in the nomination "People's amateur choral groups" in the Mykola Bidiuk regional survey-competition of choral groups [3].

The average age of university students is from 60 to 75 years, but the oldest student is a man who has already crossed the threshold of 86 years old.

Teachers at the University of the Golden Age are from different levels of educational institutions. There are teachers from universities, colleges, Khmelnytskyi Pedagogical Academy, as well as young professionals who have just graduated from educational institutions [1].

From the preceding study a number of conclusions can be drawn. Studying at a University of the Third Age is not only about helping the elderly, but also about acquiring new knowledge and skills, modern methods of maintaining health, as well as the principles of an active lifestyle.

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ARTISTIC FEATURES OF DU FU'S POETIC WORLD

Du Fu's work has had a significant influence on classical Chinese poetry and is an important component of Chinese literary heritage. His style, the principle of metaphorical imagery and poetic forms-formulae influenced subsequent poets and writers. Du Fu's poetry often thematically reflects the political, social and cultural aspects of his time, which helps contemporaries understand the historical context of the era of his life and at the same time organically interpret the manner of artistic creation. Du Fu's work not only reveals a wide figurative meaning, but also promotes a deep philosophical meaning. It is not by chance that his nickname "holy wise" expresses the poet's high degree of wisdom and spirituality.

The poetic legacy of the Chinese poet Du Fu was in the focus of researchers, including: I. Chembai [5], Ya. Shekera [6], E. Zavadska, L. Eidlin, etc. Instead, cultural aspects and their conceptual functionality are rather vaguely defined in the work of modern literary critics.

The poetic heritage is replete with a number of works, including: "Spring landscape", "The guest has come", "The wild geese are returning", "Overnight in the terem by the river", "When the moon is shining, I remember my brother..." etc. Du Fu described the life around him using the mechanism of realistic contemplation – from farm work and harvest to military tactics and the blown-off roof of a house. He did not fantasize, but reflected reality in his poems, striking the truth of life as the key to aesthetic values. Knowledge was more important to him than beauty, so he considered himself, first of all, a person for whom truth is the main principle of creativity. Almost all aspects of life in their most varied variations were reflected in his poetic heritage: from emotional movements to traditional and moral and ethical judgments.

Researchers especially highly appreciate the harmony, balance and sincerity of his poetry, which ensured the author the status of a great classic of his time. The vast majority of poems demonstrate how the artist tries to convey the harmony of human relationships as fully as possible against the background of the Chinese landscape: the mountain niche is complemented by water-type images – rivers, seas, lakes. The palette of bestiary imagery seems to be extremely multifaceted, such as the symbol of cranes, which in world practice is conceptually connected with spring, the sun, new birth, the beginning, for example, in the poem "I left the tower of the Crane, my friend went swimming".

The image of a lark is conceptually expressive and often multifaceted in Du Fu's poetic world. The author's poetic matrix impresses with its multi-thematic nature in terms of cultural meanings. Aspects of everyday life, high life, images of the outside world in synthesis with human emotions and experiences tend to a deep philosophical origin. For example, the poem "Looking at the sacred peak" [3] presents a picture of admiration for the beauty and majesty of mountains. The lyrical hero is extremely impressed by the greatness of the Creator and at the same time inhales a huge temptation to be able to remain a part, a "monad" of this greatness, the law of Tao: "The natural law of Tao determines the continuous flow of things, their mutual transformation, intergeneration and changeability, which found expression in Tang poetry. The real world of "traces" is depicted elegantly and in detail, there is always a shadow of the true creator of things in it. instead, one of the main motives of Buddhist verses is to understand the essence of nature" [6].

Bestiary symbolism can be clearly read in the poem "The picture that reproduces the falcon". The image of white silk from which a "falcon emerges" expresses the concepts of grace and strength, natural power, strength and endurance. The culture of the Eastern peoples long ago endowed this bestiary type with features of ownership of the heavenly space, which at the same time symbolizes immortality, and in ancient China this image was associated with the imperial mission. In the poem "On a Spring Day I Remember Li Bo" [6] one feels a deep intertextual poetic connection with Li Bo's work.

The vast majority of Du Fu's poems reproduce cultural meanings through deep observations of the world, where the aesthetic practice of depicting nature is organically combined and at the same time the importance of human feelings and experiences is subtextually veiled. This mechanism of contemplation makes Du Fu's work extremely interesting for interpretation. The influence of Du Fu's poetry on Chinese literature was not only that the poet improved the metric and style of Chinese

poetry, while creating and developing an innovative style of writing. His poetry was highly appreciated for its deep meaning, expressiveness and emotionality, which inspired followers. The intellectual depth, expressiveness of feelings and devotion to patriotic ideas embodied in Du Fu's work became the basis for the formation of patriotic poetry of the medieval era.

Thus, thanks to his mastery in building a poetic world, Du Fu became a symbol of literary expressiveness and a master of depth in depicting the psycho-emotional world of a lyrical hero. His influence on the national literature of China is extremely important and multifaceted, which makes it possible to better understand the cultural matrix of the artistic world of Chinese creativity.

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Session work № 2

CURRENT RESEARCH IN THE FIELD OF LAW AND SECURITY

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CONSTITUTIONAL LAW OF UKRAINE

In all legal systems constitutional law, as a branch of law, is considered to be the leading, priority branch of public law. The constitutional law of Ukraine is a set of legal norms that establish certain principles of the economic and political organization of society, the order of formation, organization and competence of the most important links of the state mechanism, the territorial organization of the state, and also determine the foundations of the relationship between the state and the individual. One of the most important postulates of modern civilization says: the state exists for man to protect his freedom and promote well-being.

The role of this branch of law is constantly growing, because Ukrainian society has not yet developed generally defined stereotypes of political culture and political ethics, and the mechanisms for forming and revealing public opinion are not sufficiently developed. The subject of legal regulation of any legal field is social relations, which are regulated by it. So, the subject of constitutional law is social relations that arise and operate in the process of exercising power by the people of Ukraine. These relations should be divided into three groups:

1. Relations directly related to the economic and political organization of society (political pluralism, diversity of forms of ownership, freedom of entrepreneurship...).
2. Relations that arise in the process of establishment and functioning of public state institutions and reflect the territorial organization of the state. These are relations regarding the organization and activity of the state mechanism, primarily its most important links, as well as relations related to the political-territorial and administrative-territorial organization of the state. They play a significant role in the general scope of constitutional and legal regulation, and their regulation creates

prerequisites for the process of exercising state power. 3. Relations characterizing the foundations of the relationship between the state and the individual. The person has an extremely important place among the subjects of political relations, and in particular, state-political relations, the exercise of state power. It is to the individual that all political and state activity in society should be addressed. In addition, these are relations of fundamental rights of Ukrainian citizens: economic, political, social, cultural, environmental, relations of guarantees of the realization of these rights and freedoms [1].

The subject of the constitutional law of Ukraine is a set of politico-legal social relations related to the relations between the state and the individual, popular expression of will, organization and functioning of state power and local self-government, as well as the state-territorial organization of Ukraine, which are regulated by the norms of the rights [2].

The method of constitutional and legal regulation is characterized by a systemic nature. This is not a single method of influencing the norms of constitutional law on a certain type of social relations, but a set of interconnected and mutually determined methods of constitutional law that exert a purposeful influence on social relations, changing their qualitative properties, after which these relations acquire constitutional and legal properties. The method of constitutional and legal regulation is a set of techniques and means with the help of which social relations, which are the subject of the constitutional law of Ukraine, are regulated.

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HUMAN VALUES AS FUNDAMENTAL CONSTITUTIONAL PRINCIPLES

One of the key problems in the field of law is the establishment of universally recognized principles, norms and values that should be the basis of the legal system. We often try to follow the example of legal systems of other countries, but this practice is not always effective, sometimes it does not meet the needs and values of our citizens.

Therefore, it is important to study how the legal system of Ukraine should be formed and what should be its basic principles.

As you know, Article 3 of the Constitution of Ukraine states that the highest social value is recognized as a human being, his or her life and health, dignity and honor, inviolability and security [1].

Human values are the expression of the basic ideals and beliefs that society considers critical to the proper and dignified life of every human being. They include various aspects covering life and health, freedom and rights, honor and dignity, equality and justice. These values are the most important and are responsible for ensuring and protecting fundamental human rights in most constitutional systems. Their inviolability means that no circumstances or actions of the state should violate or limit these values, and they should be guaranteed to every citizen. This creates the basis for a sustainable and just society, where everyone has the opportunity to develop and live in dignity, in accordance with the principles recognized by common values [2].

Human values play a key role in shaping constitutional principles and legal norms. They become the foundation for defining the rights and obligations of citizens, limiting power and ensuring justice. Constitutional documents that recognize human values provide them with protection from any violations and discrimination.

Human values define standards of behavior and relations between citizens and the government. They contribute to the formation of social consciousness and legal awareness of citizens, which helps to maintain the rule of law. In addition, they influence the lawmaking process, encouraging governments to adopt laws and policies that are consistent with these values [3].

Core values form the standards of behavior and interaction between citizens and the government. They contribute to the development of social consciousness and legal awareness of citizens, contributing to the strengthening of the rule of law. In addition, they influence the lawmaking process, pushing governments to adopt laws and policies that are consistent with these core values.

The most important are the principles of justice, humanism, goodness, formal equality, truth, and security, because they contain particularly important human values that are the high ideals of society. The principles of law, which affirm human values, are enshrined in legal acts. The value of the principles of law lies in the fact that they are not just contained in the norms of law, but go beyond them, take root in the legal consciousness of people, and become an internal regulator of the behavior of individuals [4].

Awareness of the importance of human dignity is crucial for the process of creating laws and their implementation. Insufficient understanding of this important concept can have negative consequences, as the effectiveness of the observance of human rights and freedoms is closely linked to the level of legal discipline in society and the work of state bodies.

Dignity plays an important role in a person's self-esteem and determines their self-respect. However, legislation, in particular Ukrainian legislation, does not always take this aspect into account properly. Supervision over compliance with the adopted

laws is not always carried out at the appropriate level, and this can lead to situations where dignity and human rights are not taken into account or violated.

One of the main tasks of the state is to ensure that the rights and freedoms of citizens are respected, and this is necessarily based on the rule of law. Human rights cannot exist outside of the legal system, and law, in turn, cannot exist without the protection and enforcement of these rights. It is important that the system of law guarantees the freedom, equality of all persons and protects human dignity. This is the basic foundation for a state governed by the rule of law, and it is inextricably linked to universal values.

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LAW KNOWLEDGE AND EDUCATION AT KHMELNYTSKYI NATIONAL UNIVERSITY

The aim of this study was to explain how law is being studied in Khmelnytskyi National University, show different ways of teaching students of lawyer specialty. Data for this research were received via different sources including personal experience.

Institutions of higher education all around the world offer an education in many spheres of human life. Some of them concentrate their attention on certain professional areas, providing their students with wide range of knowledge in that exact specialty. There are institutions that offer many different specialties to study, therefore satisfying need of many people. Khmelnytskyi National University represents the second group of institutions. It doesn't specialize in one certain area, but rather in many different ones. The university covers many professional spheres and one of them is sphere of law.

It is worth deciding what law is. Basically, law is a set of rules that regulate human behaviour in society and is created and enforced by the government of certain country [1]. Some people think that only little part of the law is used outside of the

work sphere of lawyers but in fact that's absolutely not true. It relates to many aspects of everybody's daily life.

There is almost no person in the world that doesn't know anything about the law. For example, most of people know some basic things, like not crossing the road at a red light or not to throw away the trash wherever they want to. Even if it seems as something really simple those are parts of the law as well. This kind of knowledge you receive from parents, schools, other members of the society, etc. By this way you straight up receive only the information about the law that you really need.

And there is another level of knowledge about the law that you can get – advanced level. This amount of information about this topic is mostly used by 3 types of people – lawyers of any kind, politicians and businessman (but there are also other people that possess this amount of understanding about it). And one of few ways of achieving is from the institutions of higher education.

Khmelnyskyi National University gives opportunity for applicants to start preparing for studying even before they become students. It has preparatory department, which provides increased studying of specialized disciplines necessary for admission to the university. Preparatory department implemented a special course to create small training groups. Members of department make significant efforts to improve the educational process, have their own way of working with future students of various levels of knowledge. In addition, it gives applicants information about structure of university, its internal procedures, form of conducting classes and many other things. [2].

As was mentioned before, our university, as many others, allows students to obtain knowledge about the law by giving an opportunity to get a Bachelor and Master degree in Law. It does so by providing numerous ways of educating students, the most common of which are lecture. Speaking of which, it's important to know that there are many subjects that are being taught in them. At the lectures students will examine creation and history of the laws all around the world, how different laws and legal institutions work and many other different things. Usually, lecturers tell students different information about law (depending on subject that is being studied) based on scientific researches. During lectures, it is allowed to conduct an active discussion related to the topic under consideration. During seminars, students must report learned information to the lecturer, thus consolidating knowledge about it. Therefore, they can expand the boundaries of their knowledge about different parts and spheres of law by analysing given information. List of disciplines that are being studied consists of: History of Law, Legal Deontology, Criminology, Criminalistics, different branches of Law that are being studied separately and so much more [3].

But that's not the only way how institutions of higher education can teach their students. They also can arrange meetings with lawyers, providing different kinds of consultations for the learners. They are also giving an opportunity to get acquainted with various legal spheres practically. Even though they are not common, those educational methods are a great for making students analyse different information from new perspective giving a fresh air amongst basic kind of lectures.

Also, it worth mentioning that when you're studying at the institution of higher education in the specialty of law, at some point you'll have to decide which

professional legal sphere you want to be part of. Despite the fact that you're receiving advanced level of knowledge here, different kinds of lawyers require different kind of education. If you are good as notary that wouldn't mean that you'll still be this good as defence attorney or prosecutor, or judge etc. That is the problem Khmelnytskyi National University usually helps its students to deal with.

In Khmelnytskyi National University it takes 3 years and 10 months to get Bachelor degree in sphere of Law [4]. During this time students learn advanced yet simple information about law and different branches of it. Starting from this period, students may get invitation from specialists to work with them. Thus, they can get more deep knowledge and specific information that can help them in future. For example, on April 2024 first year students of law department received an invitation from notary for practice.

Obtaining Master degree takes 1 year and 4 months [4]. Unfortunately, it is impossible to get Master degree in Khmelnytskyi National University as for now, although this might be changed in the nearest future.

The teaching staff of KhNU consists of a large number of professionals. All of them have been working in their respective professional spheres for very long time. And they are giving high-quality information about their subjects [5]. One of the main cons is how old many things in this University are. This mostly applies to work equipment but also some of the teaching methods and even university buildings.

Studying law is rather difficult task. Like the whole sphere of it, process of studying is very complex and consists of many different elements. Those who are unwilling to sacrifice their time and patience will never be able to reach great heights in legal profession. And while not being really fun sphere of law is still very fascinating to work with. Every single aspect of it has its own unique features and structure. Learning more about them definitely can be considered as interesting and useful activity.

As a student I can say with confidence that Khmelnytskyi National University does the job of giving proper education very well. Here, you can get a lot of different knowledge that you'll be able to use in your life. Still, studying will not be an easy task - you'll have to put a lot of effort in it. But those who feel confident to do so will be greatly rewarded.

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THE IMPORTANCE OF ‘LEGAL PSYCHOLOGY’ IN THE PROCESS OF FUTURE LAWYERS’ TRAINING

The aim of this study was to investigate whether Legal Psychology is needed as a discipline for the training of future lawyers in higher educational institutions. Considered psychological principles that apply to legal issues and how people think and behave in the legal system. On the basis of this study, data from various materials were obtained.

The mental life of a person who is connected with the judiciary and legal activity has its own characteristics, which are determined by the performance of numerous social and legal functions. It was this that contributed to the formation of Legal Psychology as a science that studies the regularities of the human psyche in the sphere of social relations regulated by law.

The goal of Legal Psychology is the development of general laws of psychological science from the point of view of their specific reflection in the legal sphere. This science reproduces the integrity of the basic sciences, such as psychology and jurisprudence, the development of which created the prerequisites for its emergence.

In modern legal psychology, patterns related to psychological aspects of law-making, psychology of legal awareness and legal understanding, as well as psychological problems of law enforcement are distinguished.

Legal Psychology as a science sets itself certain tasks that ensure the development of scientific concepts and the development of recommendations for the most effective implementation of law-making, law enforcement and law enforcement activities. They include:

- 1) study of the personality psychology of a lawyer (investigator, prosecutor, judge, lawyer) and his activities, psychological features legal procedure;
- 2) consideration of the psychological effectiveness of legal norms, the law-making process;
- 3) research of the psychological structure of the crime and the person of the offender, formation of antisocial guidelines and methods of preventive activity;
- 4) studying the ways of forming the mental activity of the participants proceedings with the aim of the most optimal performance of tasks justice;
- 5) examination of the psychological foundations of individual procedural actions with the aim of the most effective implementation of cognitive activity and its organization;
- 6) study of psychological regularities of the penitentiary activities with the aim of developing a system of measures contributing to correction behavior of convicts;
- 7) creation of recommendations for training and education of employees of law enforcement agencies, aimed at the formation of professionally necessary qualities;

8) development of practical recommendations for lawyers regarding the implementation of law-making, law-enforcement and law-enforcement functions;

9) provision of law enforcement practice with psychological knowledge, development of methods of psychological diagnosis and forensic psychological examination;

10) analysis of psychological characteristics of legal education citizens for the purpose of developing methods of preventive activities regarding individuals and population groups.

Legal Psychology, investigating various forms of psychological phenomena in the field of law enforcement, must subordinate them a certain scientifically based system that combines the complex and focus of psychological knowledge. The system of any science assumes an outline of the logic of the research, its main directions, the structure of knowledge, substantiated by constituent laws. Adjacent character legal psychology, caused by its tendencies and attraction, on the one hand, to general psychology, and on the other - to jurisprudence, causes certain difficulties in the formation of its system.

Traditionally, Legal Psychology was divided into general and special parts. The general part included questions of a scientific nature, namely: the subject of science, the definition of its methods, tasks, places in the system of sciences and the actual system of science. The general part also covered questions from the history of legal psychology in terms of the prerequisites for its emergence, analysis of the most important stages of its development, trends reflected in fundamental scientific works, study of methodological foundations of science [3, p. 31].

A special part of Legal Psychology covered significant a complex of issues related to the psychological aspects of forensic activity. In particular, problematic issues belonged to them psychological characteristics of procedural activity, which are considered to be decisive in the organization of judicial and investigative work, professional qualities of persons who carry out proceedings in cases, psychological foundations of evidence, organization and planning of investigative and judicial work. This section also contained descriptive questions psychological foundations of certain procedural actions, such as the investigator examination, interrogation, presentation for identification, verification of testimony on the spot, investigative experiment, search, appointment and conduct of forensic psychological examination. In modern Legal Psychology, based on the nature of the laws studied by it, as relatively independent, four main fields are distinguished: legal, criminal, judicial and penitentiary psychology. In turn, each field, in accordance with its orientation, investigates groups of mental regularities belonging to its subject [2, p.15].

Forensic psychology as a subject of research includes problems related to the psychological characteristics of law enforcement activities, cognitive processes related to evidence, psychological foundations of individual procedural actions, as well as analysis of the psychological side of internal belief formation. Solving the complex also belongs to the subject of forensic psychology issues characterizing the psychological aspect of preventive activities in the field of justice.

Penitentiary psychology studies the psychological features of post-criminal behavior and serving a sentence in the relevant institutions. The subject of her research is the psychological structure of a person who is serving a sentence (its adaptation, attitude to the established regime, sentence); the psychological side of the formation of microgroups and their orientation; influence methods and their optimal combination, which are used to create the necessary psychological climate. The subject of penitentiary psychology also includes a system of measures that ensure the development and application of techniques educational influence, training of teaching staff (educators), forming in them the skills necessary for educational activities functions.

A significant place belongs to it in the formation of legal psychology legal basis. The very name of the science – legal psychology – implies not only a focus on the use of psychological knowledge, but also certain regimes in which they can be applied. Availability of legal guidelines for legal psychology means that its research and recommendations must precisely correspond to the democratic principles of the judiciary, its principles and the content of individual legal norms, that is, by its very nature, not to contradict those democratic and moral guidelines of the judiciary that ensure the fulfillment of tasks, submitted by the state to law enforcement agencies.

Legal Psychology is related to various legal sciences. There is a connection between Legal Psychology and the theory of the state and law. It should be noted that the theory of the state and law examines the problems of legal consciousness, the mechanism of action of the legal system, legal and illegal behavior, actions of legal responsibility. All the mentioned problems (categories of the theory of the state and law) cannot be studied without the involvement of psychological science. To some extent, Legal Psychology also studies these problems, although there are differences in research theory of the state and law and Legal Psychology of these phenomena lie in depth of approach and aspect.

The close connection of Legal Psychology is traced with such legal sciences, such as criminal and civil law, criminal and civil processes, criminology and criminology. Thus, criminal law, investigating issues related to the subject of the crime and its subjective side, sanity, motive of the crime, guilt, committing a crime in a state of strong mental excitement, leading to suicide, etc., cannot do without using the provisions of legal psychology. In particular, the data of psychology contribute to determining the age of criminal responsibility, punishment. Legal Psychology is interconnected with procedural sciences (criminal procedural and civil procedural law). Study of problems of proof, internal conviction judges, procedural status of participants in criminal proceedings, cannot be carried out without involving the data of psychology. In this ‘psychology of witness statements’, ‘psychology inner conviction’, ‘psychology of the victim or the accused [1, p. 35].

There are close connections between Legal Psychology and forensics. Forensic science serves the purposes of detection, investigation, trial and prevention of crimes, and also develops optimal techniques and methods of collection, research, evaluation and use evidence Therefore, criminology makes maximum use of the data of psychology. Legal Psychology contributes to the development of tactical techniques,

based on the use at the required level of psychological influence, which makes it possible to establish psychological contact, expose not true, update forgotten.

At my university, lawyers and psychologists study this discipline together, in my opinion, Legal Psychology should be mandatory in the curriculum, as it delves deeply into the intersection of law and human behavior. First, lawyers learn how witnesses remember events, how juries make decisions, and even how opposing attorneys can strategize. This knowledge is like a superpower in the courtroom, allowing lawyers to tailor their arguments, anticipate responses, and effectively navigate the human dynamics of litigation.

Secondly, the relationship between the lawyer and the client is crucial for a successful case. Legal Psychology gives future lawyers insight into the thinking processes and emotional state of the client. With this understanding, they can build stronger relationships, gather more accurate and complete information, and provide legal representation that truly meets the client's needs.

In conclusion, Legal Psychology prepares future lawyers to navigate the human dimension of law. It's like having a secret decoder ring for understanding people involved in legal matters, ultimately leading to a more efficient and successful legal career.

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PECULIARITIES OF COURT PROCEEDINGS UNDER MARTIAL LAW: REMOTE PARTICIPATION IN COURT PROCEEDINGS

Introduction of the issue. On 24 February 2022, in connection with the invasion of Ukraine by the occupiers of the Russian Federation, martial law was introduced throughout the territory of our country. The judiciary, like other legal institutions in our country, was affected by the war, and this impact made adjustments to the process of judicial proceedings. The war in the country cannot but affect the administration of

justice. However, even in a full-scale invasion, the constitutional right to judicial protection cannot be restricted under any circumstances.

According to Article 26 of the Law of Ukraine "On the Legal Regime of Martial Law", the reduction or acceleration of any form of judicial proceedings under martial law is prohibited. [2] At the time, it is not always possible to ensure the continuous operation of the court during the war. Even today, some courts do not carry out legal proceedings at all or work without holding court hearings, as according to the Supreme Court, 20% of courts are under occupation or in the territory where hostilities are taking place. To resolve this issue, the Council of Judges of Ukraine passed a series of significant and pertinent resolutions on 24.02.2022, titled "On urgent measures to ensure the sustainable functioning of the judiciary in Ukraine in the context of the termination of the powers of the HCJ and martial law due to the armed aggression by the Russian Federation". Therefore, referring to these decisions, I believe this topic is subject to discussion and is most relevant in our time. [8]

Objective. To learn and analyse the activities of the courts during martial law. To get acquainted with the examples of the impact of the full-scale invasion of Russia on the activities of the judiciary and other legal institutions, as well as to discuss remote participation in court hearings.

Summary of the main material. The concept of "remote participation in a court hearing" did not gain its greatest popularity after 24.02.2022. It happened back in March 2020, when questions and issues related to COVID-19 arose in the world. And already at that time, in the spring, the Verkhovna Rada of Ukraine adopted the relevant laws that provided the opportunity for participants in various cases to participate in court hearings remotely, thereby realizing their right to a fair trial, as mentioned earlier, in a remote format.

At that time, the State Judicial Administration of Ukraine created a procedure for video communication during court hearings involving the parties outside the court premises. At that time, the State Judicial Administration provided for using specific systems (for example, the EasyCon system) or other means available to the court and participants in the trial to ensure that court hearings were held online. [3]

Accordingly, this mechanism of holding court hearings remotely, without the presence of a party to the case directly in the courtroom, has really helped to stabilise the administration of justice under quarantine. And, of course, remote participation in court hearings may have become more convenient and accessible for other cases that did not even involve quarantine conditions. The current Law of Ukraine "On the Judiciary and the Status of Judges", in part eight of Article 11, contains a mandatory requirement that court hearings are held exclusively in a specially equipped courtroom which is suitable for accommodating the parties and other participants in the trial and allows them to exercise their procedural rights and perform procedural duties. [4]

As of today, there is a war going on in our country. And if in 2020 it was enough to protect ourselves with masks, gloves, etc., and be confident that we are safe, then today, as practice shows, the conditions of martial law prevent people from realization of individuals' rights to have their cases heard by the court even in such a manner. Unfortunately, there is no absolutely safe place in our country today, and sirens sound

almost every day in every part of our country, which, in turn, requires a person (judge, participants in the case or court staff) to move to a shelter.

In this regard, reasoned proposals were made to supplement Article 11 of the Law of Ukraine "On the Judiciary and the Status of Judges" with a provision stating that if it is impossible for a court to administer justice for objective reasons during martial law or a state of emergency, due to military actions, court hearings may be held in courtrooms of other courts, as well as via videoconference outside the premises of the court (courtrooms), including by a judge, using his or her own technical means. [5, p. 30]

Ignoring the instructions regarding actions during air alerts can have tragic consequences, which unfortunately occurred in Mykolaiv region when a Russian missile hit the Mykolaiv Regional State Administration, where the Economic Court of Mykolaiv region was located. As it became known later, court employees were killed. [6]

Therefore, the question arises that during air raid alerts, the court session should be temporarily suspended until the air raid alert is cancelled. The number of alarms per day may vary, as well as their duration, so this problem needs to be further studied and resolved, taking into account the principles of judicial proceedings and ensuring the safety of court employees and participants in the case. Of course, the initiative groups are working on this issue to ensure that not only the parties to the case, but also the judges can participate in court hearings remotely. While this issue is still being resolved, it is worth using certain e-court resources, i.e. a party to a case or its representative can register via a specific link and submit an application to join the case. After registration, each person will have their own electronic personal account where they can submit documents to the court, receive documents, get acquainted with the case file, etc.

However, it should be borne in mind that not all courts in Ukraine have joined the E-Court subsystem, which in turn slows down the full use of the capabilities and resources of this subsystem. [8]

In the spring of 2022, the Verkhovna Rada of Ukraine registered the draft law "On Amendments to the Code of Administrative Procedure of Ukraine, the Civil Procedure Code of Ukraine and the Commercial Procedure Code of Ukraine". The purpose of this draft law is to introduce certain effective mechanisms for conducting court proceedings under martial law or a state of emergency, in particular, by allowing other court staff to exercise the powers of, for example, a court reporter, the possibility to perform the powers of a court reporter remotely, etc. [8]

To date, this draft law has not been adopted, rejected and withdrawn from consideration. Many courts do not always have the technical capability to hold court hearings online, and it is necessary to clarify the relevant information in advance with the court. In summary, it can be said that the martial law in Ukraine has made adjustments to the court proceedings. Nevertheless, the judicial system has withstood the blow and continues to operate at a professional level.

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IMPORTANT EXTRADITION CASES INVOLVING UKRAINE

The relevance of the chosen topic is to determine the previous experience of Ukraine's application of the extradition procedure in order to deepen theoretical knowledge in this topic. Also, in connection with the latest news about the possibility of applying extradition to men of military age who illegally left Ukraine after the start of russia's full-scale invasion, I consider it necessary to analyze the following cases in which, even though the extradition was not applied, the beginning of this procedure was laid.

The research aims to formulate the key stages initiating the extradition process and outline the causes and effects of not completing this procedure. It also seeks to analyze the chronological development in resolving the cases listed below.

First of all, it is worth clarifying the essence of the concept of extradition. As noted by Chornous Y.M., Doctor of Law, extradition - is the surrender of a person to the state whose competent authorities are looking for that person to bring him or her to criminal responsibility or to execute a sentence. [2, p. 143]

Extradition can also be defined as a form of international cooperation in criminal proceedings.

The extradition process consists of several important stages:

- 1 .a formal request to establish the location of the person in the requested state for further extradition;
2. verification of circumstances that may prevent extradition;
3. making a decision on the request;
4. actual transfer of such person to the jurisdiction of the requesting state.

Having briefly defined the essence of the concept, we can analyze a high-profile extradition case involving Ukraine.

Savchenko Nadiya Viktorivna is a Ukrainian politician and activist, military officer.

On July 8, 2014, it became known that Savchenko was in a detention center in russia. She was suspected of murdering two russian journalists, namely Igor Kornelyuk and Anton Voloshin.

On September 16, 2014, a new charge was brought against Nadiya Savchenko, namely, according to russian propagandists, she "personally participated in the torture of prisoners and wanted to hand them over for organs."

All these accusations were illegal and untrue. At the time of the murder of the two journalists, Savchenko had already been kidnapped and taken to enemy territory. According to Nadiya, she was transported in six different cars with a bag over her head, and she was given conditions, namely, either to cooperate with the enemy authorities or to be imprisoned.

On March 22, 2016, Savchenko was sentenced to 22 years in prison by a city court in rostov region. On April 5, this sentence came into force and it was at this point that Ukraine had the legal opportunity to request russia to extradite Savchenko to Ukraine.

On April 19, 2016, the head of the Ministry of Justice of Ukraine, Pavlo Petrenko, said that Ukraine was preparing all the necessary documents for Savchenko's transfer to Ukraine.

On April 27, 2016, Savchenko was given a package of documents for her extradition to fill out. At the same time, President of Ukraine Petro Poroshenko noted the possibility of exchanging Savchenko for russian officers Olexander Alexandrov and Yevgeny Yerofeev, who were sentenced to 15 years in prison in Ukraine.

Mykola Polozov, Nadiya Savchenko's lawyer, noted that the extradition process usually takes about 6 months, but hoped that everything would be expedited.

However, the extradition procedure stopped when the documents were completed. On May 25, Russian President Putin signed a decree pardoning Nadiya and at the same time President of Ukraine Petro Poroshenko pardoned two officers, O. Aleksandrov and Y. Yerofeev. On the same day, a presidential plane took off for Nadiya Savchenko and transported her to Ukraine, where she received the "Hero of Ukraine" award.

Let's move on to another high-profile extradition case involving Ukraine.

Vitaliy Markiv is a Ukrainian serviceman, a participant in the Russian-Ukrainian war.

On the night of June 30-July 1, 2017, Vitaliy Markiv was arrested in Bologna, Italy. Local prosecutors accused the Ukrainian national guard of murdering Andrea Rocchelli and his Russian translator, Andrei Mironov, who were killed in a mortar attack near Sloviansk in May 2014.

However, Vitaliy was not guilty of the murder of the two perpetrators because in 2014, the National Guard of Ukraine did not have mortars in its regular or non-regular schedule. Therefore, it can be concluded that Vitaliy did not even have the physical ability to kill the journalist and the translator.

It is worth noting that Markiv is a citizen of Ukraine and Italy. The court in Pavia considered him primarily as a citizen of Ukraine.

The Italian court found Vitaliy guilty and sentenced him to 24 years in prison. In 2015, the Prosecutor General's Office of Ukraine began preparing everything necessary for Markiv's extradition to Ukraine. However, the extradition procedure never took place in this case.

In November 2019, Markiv's lawyers filed a lawsuit with the Milan Court of Appeal. The appeal was postponed for a long time due to the coronavirus pandemic.

In November 2020, the Italian court acquitted Vitaliy Markiv due to the lack of criminal offense and proper evidence regarding the deaths of the Italian and the Russian. Subsequently, Vitaliy returned to service in the National Guard of Ukraine.

Having analyzed the above cases, it is worth summarizing that the fact that a Ukrainian citizen is detained in a foreign country for a committed offense does not mean the beginning of the extradition procedure. This process is lengthy and not always guaranteed. Extradition is regulated by certain international treaties and, of course, violation of at least one of the requirements, set in the law, makes this process impossible. I also consider it necessary to emphasize the following features of the extradition procedure:

1. There must be a legal justification for the necessity of extradition.
2. Extradition in no way goes beyond criminal proceedings; it is one of the stages of the criminal process.
3. Extradition takes place only when the act committed is a criminal offense with a punishment both in the state in which the person was detained and in the state to which the person will be extradited.
4. International treaties provide for a number of grounds that may impede the extradition process or even make it impossible.

This list will help to better understand, even without a detailed analysis, why in some cases the extradition procedure may be initiated but not completed.

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PECULIARITIES OF CHILDREN'S RIGHTS PROTECTION UNDER MARTIAL LAW IN UKRAINE

The civilian population suffers the most under martial law. A particularly vulnerable category is considered to be children. They experience the most negative and devastating impact due to the cruel actions of the aggressor country. Military action leads to increased risks to the safety, health and wellbeing of children. Therefore, the protection of children's rights in conditions of military conflict remains a priority task of the state.

An important activity of the state in the field of child's rights protection is the improvement of current legislation, ratification of conventions, including the implementation of international law. Ukraine is a member of a number of international instruments in the field of child rights [1]. Thus, the UN Security Council defines four priority areas for the children protection under martial law in Ukraine: 1. Safety and protection of children from violence. 2. Psychological support. 3. Medical care. 4. Access to education [2]. All these areas are extremely important for the safety and healthy children development during martial law. There are the directions to describe:

1. *safety and protection of children from violence*. Prevention of violence against children under martial law is extremely important and requires an integrated approach. It is significant to ensure the proper protection of the most vulnerable children by creating safe zones where they can seek refuge and protection from violence and

conflict. It is also worth paying attention to the organization of entertainment and educational activities for children which will help them to distract from stress and trauma to find positive ways of expressing their feelings [3].

2. *psychological support*. Children who have experienced war events may need psychological support to overcome stress, trauma and emotional difficulties. Providing psychological help and psychotherapy can help children find inner strength and adapt to difficult conditions.

3. *medical care*. Providing health and medical care for children under martial law is an extremely important task. Military conflicts can lead to a significant deterioration in the children state of health due to injuries, illness and psychological stress. It is necessary to focus on the availability of medical care for children. This specifies the medical personnel, medicines, medical equipment and other resources that are available to provide effective care. It is important to give the immediate medical care for children injured or injured as a result of hostilities. It also requires a quick reaction and first aid that will save the child's life and prevent further complications. It is essential to prevent the spread of diseases and epidemics among children through vaccination, hygiene measures and monitoring of water and nutrition quality, ensuring adequate access to medicines and medical supplies necessary to treat diseases and maintain children's health. The situation calls for the dissemination of information and educational activities for a healthy lifestyle, including proper nutrition, physical activity and avoiding bad habits. An important role in maintaining children's health, the maximum efficiency of providing medical care to children under martial law is played by the effective coordinated work of medical institutions, humanitarian agencies and local authorities. These measures concentrate on the highest level of health and medical care for children in war conditions to ensure their survival and recovery in these difficult circumstances.

4. *Access to education*. Ensuring continued access to education is key to protecting children from military influence and guaranteeing their right to education. Educational institutions should be protected from hostilities, and students and teachers should be able to study and work in a safe environment [4]. Children should be educated on peaceful conflict resolution, problem-solving and peacebuilding. This will allow them develop cooperation skills and constructive communication that will reduce the risk of using violence. Conducting information campaigns and educational events for children, parents, teachers and the public about the rights of the child, the peaceful settlement of conflicts as well as the preservation of mental and physical wellbeing under martial law. These measures are intended not only to prevent the emergence of violence against children under martial law but also to provide safety, wellbeing and normal development during these difficult times.

Summarizing the above, we are forced to state that the martial law itself, the variability, unpredictability and cruelty of the aggressor's military actions often make it impossible or difficult to implement the functions assigned to the state to ensure the protection of the child's rights. However, despite everything, our state is actively working in these areas, in particular, actively involving international humanitarian and

human rights organizations to assist in solving humanitarian problems and protecting the rights of children in a military conflict.

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LEGAL EDUCATION OF THE INDIVIDUAL AND LEGAL NIHILISM IN UKRAINE

The purpose of this article is to examine legal nihilism in the context of the value of the legal institution and its development in Ukraine. We will try to understand the characteristic features of legal nihilism as a mass phenomenon, given the Constitution, which defines Ukraine as a democratic, social and legal state [1]. However, the reality demonstrates crisis phenomena in the political, social and economic spheres, as well as a high level of crime and offenses in the country. Overcoming various deformations of the legal consciousness and culture of Ukrainian society, particularly legal nihilism, is an essential task of legal education.

In general, nihilism denies established social norms, ideals, principles, laws, authorities, traditions, etc. [2, p. 425]. Considering nihilism in each sphere - moral, aesthetic, religious, political, legal, etc. - it can be noted that its nature, causes, and consequences can differ significantly. In each of these spheres, nihilism manifests itself in its form, and by analyzing it, one can better understand its impact on society and the individual.

Speaking of legal nihilism, it should be distinguished from criticism of law and legal negativism. The criticism is aimed at denying "defective" norms, conservative legal habits, negative legal stereotypes, and imperfect legal institutions, while legal nihilism is a disagreement with progressive ideas, ideals, and values in the legal sphere [3, p. 17].

Legal nihilism in Ukraine can be caused by various factors. The following are examples:

1. High levels of corruption in the justice system and the inability of courts to deliver fair decisions undermine public confidence in the legal system. It can lead to the spread of legal nihilism when people lose faith in the effectiveness of the law.

2. Political instability: Political crises, uncontrolled changes in power, and the lack of a stable legal environment can increase citizens' uncertainty about the legitimacy and stability of the legal order.

3. Economic factors: Social inequality, high unemployment, and lack of opportunities for economic relief can contribute to negative attitudes toward law and order.

The development of legal nihilism is a complex phenomenon, and it can arise from different reasons and in various contexts. Overcoming this phenomenon requires a comprehensive approach, including legal system reform, improved justice, political and economic stability, as well as education and awareness-raising on the rights and responsibilities of citizens.

Special means to minimize legal nihilism should be mentioned:

- quality of laws and other legal acts. Ensuring the proper role of the law in the system of legal acts. Stability and uniformity in the regulation of social relations;

- the authority of the state power and the efficiency of its mechanism. The existence of the developed state structure capable of ensuring the enforcement of the law. Improvement of the law enforcement agencies system and legal enforcement activities. Strengthening the rule of law. Enhancing the role of the court;

- a high legal awareness that would allow the law to work. Preservation of the identity of legal culture. Improving the legal information system, professional training and education of lawyers and other officials [4].

If legal nihilism is present and widespread in a society, no country can lead in ensuring the life safety of its population, reach the top of rankings for high living standards and prosperity, and risks losing credibility in the international arena on many issues (such as tourism and education) in the future. A state with unaware citizens has a great chance of becoming a center of unpunished crime, stimulating criminal elements through its inaction [5, p. 48].

The main way to overcome legal nihilism is to build a state governed by the rule of law, to realize its absolute value, and to establish and consolidate the legal nature of relations between citizens, authorities and the state. It can only be achieved through a careful approach to educating the population on the principles of proper behavior, legal thinking, general awareness of the law, conducting preventive work with the population, strengthening anti-corruption measures and reaching a new level of legislative quality.

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Session work № 3

CURRENT RESEARCH IN THE FIELD OF ECONOMICS

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COMPENSATION PACKAGE IN THE STAFF MOTIVATION SYSTEM

The modern business environment requires improving the staff motivation system. The labor market is becoming increasingly competitive, and attracting and retaining talent requires new approaches. Changes in the economic and social sphere, such as inflation and growing social needs of employees, necessitate a review of compensation packages. The compensation package is a key tool for motivating employees to increase productivity and job satisfaction. The relevance of this topic is driven by the need to attract and retain qualified employees, motivate them to achieve the company's goals and increase productivity. The COVID-19 pandemic has significantly changed working conditions and increased the importance of compensation packages in people's motivation systems. Changing ways of working, increased risks for employees, and the need to maintain financial well-being have become pressing issues. The expansion of global communication technologies has created conditions for remote work and a global competitive environment, which raises the issue of effective employee motivation in a distributed work environment.

The **aim** is to research and analyze the compensation package as a motivation tool, assess its impact on employee productivity, and determine the best methods for creating and managing corporate remuneration systems.

The **subject** of the study is the compensation package as a tool for motivating employees. This includes the study of how different elements of the compensation package (e.g., salary, bonuses, insurance packages, flexible work arrangements) affect job satisfaction, commitment to the organization, and employee productivity.

The following **methods** were used to achieve this aim: general scientific methods of analysis, synthesis, induction, deduction, comparison, questioning, observation, generalization of research results, abstraction, idealization, comparative, financial analysis.

The main **objectives** of this study are to investigate and analyze the compensation package as a motivation tool, assess its impact on employee productivity, and determine the best methods for creating and managing corporate remuneration systems.

Staff motivation is the process of encouraging employees to achieve certain goals and objectives in an organization. Motivation includes various psychological and material factors that encourage employees to perform their duties at a high level. Key motivation factors include rewards, recognition, development opportunities, and personal growth. Staff motivation can be internal and external. Intrinsic motivation is based on the employee's personal goals and values, while extrinsic motivation uses such means as financial rewards, bonuses, and career development. Motivation methods may include training and development, a reward system, creating comfortable working conditions, as well as developing career plans and opportunities for employee self-realization.

The development and implementation of a motivational system consists of 7 key steps [1]:

1. Identification of the company's problems arising from a lack of motivation. Most often, these are low labor efficiency, staff turnover, poor atmosphere within the team and emergency mode of work.
2. Drawing up a list of key tasks based on the first point (increasing productivity, raising team spirit, forming a cohesive team).
3. Conducting social diagnostics. For this purpose, you can use questionnaires, interviews or questionnaires. As a result, the key financial and non-financial incentives that the team and each employee needs are identified.
4. Develop a motivation system based on the data obtained. Select specific methods and establish their sequence and frequency.
5. Calculate the financial costs of implementing the system.
6. Informing the staff in detail about the upcoming changes. If the system is multi-level and difficult to understand quickly, it is better to distribute detailed instructions that describe the evaluation parameters and methods of calculating bonuses and penalties.
7. Launch and test the system. At the end of the trial period, the first results are summarized by comparing costs and profits.

Google is recognized for its innovative corporate culture and approach to employee management. Google's recipes for success that drive employee performance and satisfaction [5]:

- Google sets the industry benchmark with its competitive compensation, offering monthly benefits exceeding \$10,000 for regular employees, which significantly contributes to job satisfaction and financial security.
- The company's office design breaks the mold, featuring lounges, sports facilities, and various amenities that cultivate a relaxed and stimulating work environment.

- Emphasizing results over process, Google empowers its workforce by allowing them the autonomy to determine the most effective paths to achieve their objectives, enhancing creativity and efficiency.
- Transparency within the organization ensures that the outcomes of individual and team efforts are visible to all, fostering a sense of accountability and camaraderie among employees.
- Beyond the workplace, Google extends a comprehensive suite of corporate perks, such as fitness centers, relaxation zones, and complimentary meals, while also considering the well-being of employees' families with policies like maternity leave and bereavement support.

A compensation package is a category not only of an employee, but also of an employer who provides an employee with a compensation package for engaging him or her in the work process and disposing of the results of his or her work. For an employee, a compensation package is a set of all compensations, including material payments and remuneration, intangible benefits and services, that he or she receives for performing a certain job function at a particular company and for the labor results achieved in the course of using labor. For an employer, a compensation package is a set of all compensations provided to an employee for engaging him or her in the labor process and disposing of his or her labor results. For the employer, compensation is the cost he incurs to attract an employee, build his commitment and loyalty, retain him in the company, and motivate him to perform certain work and achieve the appropriate results [2]. The compensation package includes all types of compensation offered to employees: salary, bonuses, social packages, health insurance, shares and options in the company, pension contributions, and other financial and intangible benefits. Its structure can be customized for each employee individually depending on their role and contribution to the company. Compensation packages can cause problems in the motivation system, including lack of financial resources for high payments, inappropriate structure of compensation packages, inequality in pay, incompatibility of employers' interests, etc.

Workers' compensation insurance is an important component of a compensation package because it provides financial protection for employees in the event of an accident or illness. It can also be used to encourage employees to pay attention to workplace safety and avoid risks. Insurance includes accident insurance, medical insurance and other employee protection measures. Accident insurance provides financial protection if an employee experiences an accident at work, such as an injury. In this case, the insurance company will pay compensation to the employee. Health insurance covers the cost of medical treatment, doctor's consultations and other medical services. Insurance programs are available to encourage employees to follow safety rules and avoid risks in the workplace. For example, rewards for accident-free work or participation in safety training. Employee insurance can give employees a sense of security and confidence in their future, which can have a positive impact on productivity and job satisfaction [3].

Employee life insurance plays a pivotal role in ensuring social security and safeguarding employees. TASlife's group life insurance policy offers a comprehensive suite of benefits designed to meet the diverse needs of both management and HR departments. Key features of this insurance include:

1. *Military Risk Protection*: This crucial benefit offers financial security to employees affected by military incidents or conflicts, ensuring peace of mind during uncertain times.
2. *Covid-19 Coverage*: In response to the pandemic, this policy provides crucial financial assistance to employees and their families affected by Covid-19, offering a layer of additional security.
3. *Broad Illness and Injury Coverage*: With provisions for over 173 illnesses and more than 130 types of injuries, TASlife ensures employees can access necessary treatments without financial burden, promoting a healthier workforce.
4. *Critical Illness Support*: The insurance plan covers the diagnosis and treatment of critical illnesses, ensuring employees can focus on recovery without worrying about medical expenses.
5. *Disability and Life Loss Compensation*: In the unfortunate event of disability or death, the policy provides significant compensation, crucial for maintaining the financial wellbeing of the affected employee's family.

The effectiveness of staff motivation systems often encounters challenges like imbalanced rewards, inefficient incentives, and dwindling motivation. Historical economic research, from Elton Mayo's emphasis on workplace social dynamics to Maslow's hierarchy of needs and McGregor's managerial theories, has underscored the complexity of employee motivation. Herzberg's work further distinguished between satisfaction-enhancing and dissatisfaction-preventing factors. Contemporary studies continue to explore motivation, focusing on leveraging technology, adapting to evolving work cultures, and balancing personal and collective motivation strategies amidst shifting economic landscapes.

Future research aims to refine motivation systems to be more responsive and tailored, addressing psychological needs and environmental changes. This ongoing evolution underscores the critical role of well-designed compensation packages within HR strategies to boost retention, productivity, and adaptability in the modern business ecosystem. Continual refinement of these packages, with a keen eye on individual and societal shifts, remains crucial for sustained organizational success.

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PROFIT AND PROFITABILITY OF THE ENTERPRISE AS THE MAIN INDICATORS OF ITS PERFORMANCE

In today's dynamic economic environment, enterprises are increasingly facing new challenges and tasks to improve production efficiency, and competitiveness of products and services through the introduction of scientific and technological progress, as well as effective forms of management and production management. An important task remains to strengthen integration processes and both external and internal factors of influence, to ensure an increase in production and development of enterprises in the current competitive environment. Entrepreneurial activity can be considered effective if there is a positive financial result and its growing dynamics. The attention of enterprise managers is increasingly focused on the amount of profit and profitability of the enterprise. Thus, the role of analyzing the financial condition of an enterprise, assessing its financial stability, and finding ways to improve efficiency and strengthen its financial stability is growing. Of particular importance is the objective and timely assessment of such indicators as profit and profitability.

The **aim** of this article is focused on a comprehensive study and detailed research of various aspects of determining profitability indicators and the mechanism for ensuring profitability of processing industry enterprises in the modern market economy, as well as developing proposals and recommended directions for increasing the level of profitability of production of enterprise products based on analytical calculations and theoretical and methodological research.

The **object** of the study is the factors of formation and reserves for increasing the profitability of manufacturing enterprises.

The **subject** of the study is a set of theoretical and practical aspects of the system of profitability indicators and ways to improve the level of these indicators.

To achieve the aim, the study used general scientific **methods** of analysis, synthesis, induction, deduction, comparison, etc.

Profitability is an important comprehensive criterion of the efficiency of an enterprise. This concept is usually understood as one of the complex characteristics of the financial condition of an enterprise, which determines the degree of efficiency of its functioning by comparing the results obtained and the costs incurred (or resources raised) [1]. Profitability as a characteristic of the efficiency of an enterprise's functioning and development plays an important role, which is manifested in the evaluation, incentive, and budgeting functions.

Profit and the relative indicator of profit-profitability are the main indicators of enterprise performance that characterize the intensity of the business. The viability of an enterprise largely depends on the extent to which the financial return on resources is ensured and the level of profitability achieved in the process of cost formation.

In practice, the level of profitability of trading companies is usually determined by the ratio of profit to retail turnover. It shows how much profit is in the turnover. This level of profitability should not be calculated based on the entire profit balance sheet, but only on the profit from the sale of goods, since the financial results from the sale of fixed assets and other assets, as well as non-operating income, expenses, and losses, are not directly dependent on changes in turnover [2]. This indicator is called the level of profitability of sales and is considered one of the main indicators of the efficiency of trading companies. It is directly dependent on changes in the level of gross income and inversely on growth or decline in the level of turnover costs and taxes collected from the trade margins realized.

Today, the problem of increasing profitability is one of the most important tasks for modern enterprises. Unfortunately, not all organizations have been able to recover from the effects of the economic crisis. Therefore, one of the most urgent tasks at the present stage is for managers involved in the economy and production to master modern methods of efficiently generating and shaping profitability in the course of the organization's production activities.

Competent and effective management of the profitability and reserves of an enterprise involves building appropriate organizational and methodological systems to ensure this management, knowledge of the main mechanisms, profitability formation, and the use of modern methods of analysis and planning.

Some strategies for managing profitability may include, inter alia, revenue optimization, and cost reduction initiatives. Identifying areas where costs can be reduced without compromising quality and efficiency is critical. This could be renegotiating contracts with suppliers, optimizing production processes, or implementing energy-saving measures. Finding ways to increase revenue can have a direct impact on profitability. This may involve entering new markets, diversifying product ranges, or implementing pricing strategies. Improving the productivity of both human resources and equipment can lead to increased output for the same level of costs. This may involve providing training and development opportunities for employees, optimizing shift schedules, or introducing incentives to increase productivity.

The profitability of an enterprise is formed under the influence of a large number of interrelated factors that affect the results of the enterprise's activities in different directions: some – positively, others – negatively. Moreover, the negative impact of some factors can reduce or even negate the positive impact of others [4]. The diversity of factors does not allow them to be limited, and therefore it is necessary to identify the main groups of such factors, in particular, factors of increasing the profitability of the enterprise.

In today's environment, the survival of an enterprise in a competitive environment depends on its financial stability, which is achieved by increasing production efficiency through the economical use of all types of resources, reducing costs, identifying existing reserves, and new ways to increase production and profit [3]. Analysis of the financial and economic activities of enterprises plays an important role in achieving this goal. It is used to develop the strategy and tactics of the company's development, substantiate plans and management decisions, monitor their implementation, identify reserves for improving production efficiency, and evaluate the performance of the company, its divisions, and employees. The content of the analysis follows from the functions. The central function of the analysis is to find reserves for improving production efficiency based on the study of experience and achievements of science and practice. The last is the development of measures to use the identified reserves in the course of business activities.

Different types of profitability can be used to calculate the profitability of an enterprise's profit: gross profit; profit from sales, i.e., from operating activities; profit from other activities; and net profit. At the same time, the profit is compared with the advance cost, which can be taken in different ways.

One significant factor contributing to increased profitability is the efficient utilization of resources. For instance, consider a manufacturing company that identifies a considerable portion of its expenses attributed to raw material wastage during production. By implementing lean manufacturing principles and adopting advanced inventory management techniques, the company can reduce waste and optimize its resource allocation, leading to lower production costs per unit. This, in turn, enhances the gross profit margin as more revenue is generated per unit sold while keeping production costs down. Moreover, by investing in employee training programs to enhance skill sets and productivity, the company can further improve operational efficiency, resulting in higher profits from sales. As a result, the enterprise not only boosts its bottom line but also strengthens its competitive position in the market by offering cost-effective products or services.

Thus, analyzing the level of profitability of an enterprise's business activities is an important stage of management in general, as it forms the information and analytical and analytical basis for management decisions. The profitability analysis is carried out in a certain sequence and involves the calculation of a system of indicators. Indicators of the level of profitability of an enterprise are classified depending based on comparison and are divided into cost, revenue, and resource indicators. The general mechanism for determining the level of profitability involves comparing the results obtained with the costs incurred or resources used.

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THE IMPACT OF CRYPTOCURRENCY IN THE DIGITAL ECONOMY

In the current era of rapid transformation, the digital economy stands as a powerhouse of innovation and growth, reshaping traditional financial landscapes and paving the way for new avenues of commerce. At the forefront of this revolution is cryptocurrency, a digital asset that has notably shifted paradigms in how value is exchanged, erasing geographical barriers and redefining trust in financial engagements.

One of the most significant impacts of cryptocurrency on the digital economy is its ability to democratize financial access. Unlike traditional banking systems that may be inaccessible or restrictive for certain demographics or regions, cryptocurrency offers a decentralized alternative that empowers individuals to participate in the global economy on their terms. This inclusivity is particularly evident in regions with underdeveloped banking infrastructure, where cryptocurrency provides a lifeline for those marginalized by traditional financial systems.

Moreover, cryptocurrency facilitates frictionless cross-border transactions, eliminating the need for intermediaries and reducing transaction costs and time delays. This efficiency not only streamlines international trade but also fosters greater financial integration on a global scale, enabling businesses and individuals to transact seamlessly across borders without being hindered by cumbersome bureaucratic processes.

However, despite its numerous advantages, cryptocurrency also presents challenges and risks to the digital economy. Chief among these is its inherent volatility, which can lead to significant price fluctuations and pose risks to investors and businesses alike. Moreover, the decentralized and pseudonymous nature of many cryptocurrencies has raised concerns about their potential misuse for illicit activities

such as money laundering and terrorism financing, prompting regulatory scrutiny and compliance requirements that could stifle innovation and adoption.

Nevertheless, the future role of cryptocurrency in the digital economy appears promising, with growing mainstream acceptance and adoption driving further innovation and integration. As governments and institutions explore the potential of blockchain technology and digital currencies, we can expect to see continued convergence between traditional financial systems and the burgeoning cryptocurrency ecosystem, ultimately shaping a more inclusive, efficient, and resilient digital economy for years to come [3, 4, 5].

The **aim** of this article is to explore the transformative impact of cryptocurrency on the digital economy, particularly focusing on its role in democratizing financial access, facilitating seamless cross-border transactions, and presenting both opportunities and challenges within the evolving financial landscape. Through comprehensive analysis and case studies, this article endeavors to provide a balanced perspective on how cryptocurrency is reshaping economic interactions, its future potential and implications for global finance.

The **subject** of the article is to explore the impact of cryptocurrency on the digital economy.

The **objectives** are the following: to analyze its effects on financial accessibility, cross-border transactions, and global financial integration, to evaluate its advantages and disadvantages, and to assess its potential future role.

To achieve the objectives mentioned above, the following **methods** have been conducted: literature review, data analysis, case studies, regulatory analysis, and future trends analysis.

During the pandemic, the allure of Bitcoin and other cryptocurrencies surged among investors, a trend driven by the search for alternative income streams in a period of economic uncertainty. Notably, even traditional financial institutions began allocating fiat reserves to digital currencies in 2020, underscoring the sector's growing mainstream acceptance. Yet, the genesis of cryptocurrency predates these recent developments, with Bitcoin emerging as the trailblazer in 2008. Conceived by an individual or group known as Satoshi Nakamoto, Bitcoin introduced a decentralized financial system through a seminal document that outlined the principles of blockchain technology. This innovative approach ensures transaction security through a network of information blocks that validate each other, marking a departure from traditional, centralized financial systems. Interestingly, attempts at creating digital currencies in the 1990s faltered primarily due to their centralized nature, which left them vulnerable to manipulation and control by intermediaries—a challenge that Bitcoin's decentralized model successfully overcame.

At first, Bitcoin had practically no value, but a series of events fundamentally changed the situation. The key was the financial crisis, which showed the failure of the banking system. People began to transfer their savings to cryptocurrency, and with the growing popularity of digital money, the rate of tokens began to grow. Over time, Bitcoin began to go beyond the network, because it became possible to buy goods for BTC. Everything developed according to the "snowball" principle, and already today

many countries have legalized cryptocurrency, which allowed them to support the economy [1].

Cryptocurrencies extend beyond Bitcoin into various types, each with unique features and purposes:

1. **Altcoins:** All cryptocurrencies other than Bitcoin, such as Litecoin, offering enhancements in transaction speed, blockchain functionality, or privacy.

2. **Stablecoins:** Cryptocurrencies pegged to stable assets like the US dollar or gold, aiming for minimal volatility.

3. **Tokens:** Digital assets used for payments or transferring ownership, with some, like NFTs, representing unique items or values.

4. **Payment Tokens:** Designed for buying goods or services, emphasizing the reliability and longevity of the cryptocurrency.

5. **Meme Coins:** Inspired by internet memes, these often serve for humor or commentary.

6. **Security Tokens:** Aimed at asset exchange and financial security, replacing traditional financial instruments.

7. **Utility Tokens:** Offer access to blockchain-based services or functions, frequently funding development projects.

8. **DEX Tokens:** Support secure and anonymous direct exchanges between users, bypassing centralized platforms.

9. **Gaming Cryptocurrencies:** For in-game rewards and transactions, enhancing the gaming experience.

10. **Wrapped Tokens:** Represent another cryptocurrency's value on a different blockchain, like wBTC on Ethereum.

11. **NFTs (Non-Fungible Tokens):** Unique digital tokens that can't be exchanged on a one-to-one basis, differing from conventional cryptocurrencies [2].

One of the most well-known and widespread cryptocurrencies is Bitcoin. Bitcoin was created in 2009 under the pseudonym Satoshi Nakamoto and introduced the concept of blockchain, a revolutionary technology that has become the basis for all cryptocurrencies. Blockchain is a decentralized system that allows storing information about transactions in a chain of blocks. This technology ensures the safety and reliability of cryptocurrencies, as information about each transaction is distributed through a network of users and cannot be changed without the consent of the entire community.

Cryptocurrency such as Bitcoin uses two main systems for confirming transactions: "Proof of Work" and "Proof of Stake". Proof of Work requires a lot of computing power to confirm transactions and mine new blocks in the blockchain, making it energy-intensive, but quite secure due to the complex calculation process. Proof of Stake, on the other hand, is based on the participation of coin holders in a network where transactions and blocks are confirmed according to the number of coins they hold. It is less energy efficient, but is considered less resource intensive and known to have less environmental impact. Both methods have their advantages and disadvantages, and while Proof of Stake may be less secure in some respects due to the

potential concentration of power in large coin holders, its effectiveness and resistance to attacks may depend on the specific implementation and choice of algorithm.

Cryptocurrencies also differ in their purpose and technical characteristics. For example, Ethereum offers advanced capabilities for creating smart contracts that can automate various operations, not limited to financial transactions [3,4,5].

Cryptocurrency significantly influences the digital economy by:

1. **Enhancing Access to Financial Services:** Cryptocurrencies, exemplified by Ripple's XRP, revolutionize cross-border payments by enabling rapid and cost-effective transactions. An illustrative partnership between Ripple and Santander Bank resulted in the One Pay FX system, offering instant international payment capabilities.

2. **Fostering Innovation and Startups:** The Ethereum blockchain has catalyzed the creation of decentralized applications (DApps) and startups, particularly within the decentralized finance (DeFi) sector. Innovations like Compound Finance and Aave demonstrate Ethereum's impact by providing intermediary-free lending, borrowing, and trading services.

3. **Boosting National Competitiveness:** Countries embracing cryptocurrency and blockchain, like Switzerland, become hotspots for innovation and investment. Switzerland's favorable regulatory environment and support for blockchain initiatives have made it a global center for companies such as Ethereum and ShapeShift, enhancing its competitive stance on the international stage.

4. **Identifying Challenges and Risks:** The digital currency space is not without its challenges, highlighted by the collapse of the Mt. Gox exchange in 2014. The incident, involving the loss of 850,000 Bitcoins due to hacking and mismanagement, emphasizes the critical need for robust security measures and regulatory frameworks to mitigate risks in the cryptocurrency sector.

Cryptocurrencies have become an integral part of the digital economy and promise to change the way we deal with money and finance, expanding opportunities while also bringing challenges and risks. Regulators, businesses, and consumers must collaborate to ensure the stability and development of this new industry. Additionally, further exploration into emerging trends such as DeFi (Decentralized Finance) and NFTs (Non-Fungible Tokens) is essential. These innovations represent new frontiers in finance and digital ownership, offering potential benefits but also requiring careful examination to understand their impact on the digital economy fully.

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HR-BRAND AS A FACTOR OF EFFECTIVE ENTERPRISE PERFORMANCE

In an increasingly competitive environment, companies are forced to fight for competitive advantage. Human resources are the main advantage. The more talented and creative a company's staff is, the more innovative and diverse ideas they can bring to the company. A unique team and a strong HR brand that helps to create and maintain it can become a competitive advantage that will help a company survive the crisis. A strong HR brand is a long-term investment that gives a company an improved reputation.

The **aim** of the article is to find out what an HR brand is and what advantages it has for the effective development of an enterprise.

The **subject** of the study is the HR brand as a factor of effective organization performance.

The **object** of the study is the factors of formation and influence of HR-brand on the efficiency of the company. To write the article, I used such research methods as analysis of scientific literature, interviewing employees and managers of enterprises, analysis of financial indicators of companies, observation, comparison and evaluation.

There are many approaches to defining the concept of a company's HR brand. Usually, the authors emphasise that HR brand is, first of all, a favourable image of the company as an employer, which it tries to form in the eyes of stakeholders [1]. An HR brand is also considered as a purposeful work with the reputation of an employer [2], or as a "trademark" that has been established for an employer in the labour market and reflects a certain set of characteristics, its uniqueness, and attractiveness [3].

Undoubtedly, all the concepts of HR-brand exist, in this case there can be no wrong interpretation, each author has his own individual approach to the definition, but, in my opinion, the most appropriate and successful definition of HR-brand is given by S. O. Tsymbalyuk, who defines the employer brand as "a set of functional, economic

and psychological advantages obtained as a result of employment in a particular organisation and associated with this company" [4].

The process by which a company's brand is formed as a successful and reliable employer is called HR branding - a set of efforts of the company to interact with existing and potential employees, which makes it an attractive place to work [1, p. 317]. There is no clear information about the company that first launched an HR brand. However, it is worth noting some pioneering companies that have been implementing this practice since ancient times. The first company is Sony. Back in the 1950s, Sony focused on creating an innovative and dynamic work environment. Nevertheless, IBM is also known for its staff development and training programmes, as well as its emphasis on long-term careers.

The meaning of an employer brand is that the external image of a company is associated not only with its marketing brand, but also with the employer's actions, values and behaviour in general. For the organisation, the employer brand acts as a link between all departments, ensuring loyalty, protection and satisfaction of employees.

Thus, the employer brand is:

1. The image of the company as a good place to work for all stakeholders (both current and former employees, and even job candidates).
2. A set of economic, professional and psychological benefits that an employee receives by joining the company.
3. The way in which a business builds its identity, starting with its basic foundations and values, and how it communicates it to all stakeholders.

The main goal of creating a brand is to create an image of the employer as an ideal place to work. The company's efforts to create an employer brand involve not only creating an external environment (the image of the company as an ideal workplace), but also an internal environment (creating a unique company culture aimed at achieving goals).

It has been proven that companies with a strong HR brand:

- reduce the costs associated with attracting and hiring staff;
- improve labour relations;
- promote staff retention, thereby reducing staff turnover;
- can offer lower salaries to employees in similar positions compared to companies that do not have an employer brand;
- improve and change organisational culture;
- get the opportunity to fill vacancies faster.

To systematise the factors that influence the employer brand's impact on the company's performance, I have divided them into three parts: two of them are related to profit (increased revenue and reduced costs), and the third includes the concept of innovation - radically new processes, products and services, the quantitative impact of which is very difficult to assess on average: innovations can provide small savings through an innovation proposal or turn the company's industry upside down.

Let's consider in each of the points the main and noticeable benefits that can be provided by the development of the employer brand.

Cost reduction. The main objective of an internal HR brand is to increase employee loyalty to the company. By recruiting university graduates, companies invest in the training of young professionals and expect them to bring economic returns in the future. But they need to be sure that the prepared specialist will not leave the company but will stay with it. This is how an organisation can reduce implicit costs by developing its employer brand.

Increased staff loyalty is reflected in such a quantitative indicator as staff turnover. If an employee leaves the company, a new employee must be recruited to fill the vacancy. Moreover, the functions assigned to the position are temporarily either not performed or partially performed, thus reducing the efficiency of the company's business processes. An HR brand helps to reduce the time it takes to find a candidate. Obviously, an HR brand reduces search costs.

But don't forget about the associated costs. For example, during the period when a new employee is being searched for, employees usually perform the functions of the position by combining their duties. Their labour is more expensive, as they work overtime and their work efficiency decreases. After joining the company, a new employee often needs training and an adaptation period, during which he or she learns about the business and the company's processes and reaches the required level of efficiency.

Increasing the company's income. While both external and internal HR brands have an impact on cost reduction, the internal HR brand has a predominantly positive impact on revenue growth. It increases employee loyalty to the company and brings a number of benefits to the company. Employees who are satisfied with their work are more efficient, and thus increase the company's income.

Innovation. Low innovation activity of enterprises leads to a decrease in their competitiveness. The transition of the enterprise to innovative strategic management will allow finding reserves for improving product quality, saving labour and material costs, increasing labour productivity, improving production organisation and increasing its efficiency [2]. People with innovative potential are a limited resource in the labour market. And the function of attracting them belongs to the employer's brand. Positive innovative activity of the company's employees ultimately provides great benefits to the organisation, as it does not need to turn to other companies for help in finding new ideas, the process of forming its own innovation base is still underway, and the staff is able to realise their creative potential. Thus, the employer brand creates conditions for increasing the efficiency of processes (process innovations) and improving products (product innovations).

Trends that may emerge in the future in HR branding:

- HR branding will increasingly focus on the individual needs and expectations of candidates.
- It will be important for companies to demonstrate their true essence and values in their HR brands.
- The world of work is becoming increasingly flexible, and HR brands need to keep up with the times. Flexible work schedules and remote work opportunities will need to be introduced.

- It will be important for companies to demonstrate their commitment to the environment, social justice and other topics important to society.

I will focus on the company Google and its methods of implementing an HR brand for successful operations. Google has a website dedicated to careers. It contains information about Google's culture, job openings, and development opportunities. In addition, they use social media to connect with candidates and share information about their culture and job openings. Moreover, the company offers a wide range of development programmes to its employees, including training, mentoring and coaching. Last but not least, Google has a strong corporate culture that emphasises innovation, collaboration and connection.

Google is one of the companies that has managed to build one of the strongest HR brands in the world. Its approach to HR management is based on the following principles:

- Hiring the best: Google is looking for people who not only have the right knowledge and skills, but also share the company's values.
- Creating an environment where people can grow: Google offers its employees many opportunities for training and development, as well as flexible working hours and other benefits.
- Supporting work-life balance: Google understands that happy and healthy people work better, so the company encourages its employees to maintain a work-life balance.
- Openness and transparency: Google strives for open communication with its employees, so all important decisions and events in the company are discussed publicly.

Thus, an HR brand is the image of a company in the minds of employees, potential employees and the labour market as a whole. The task of a business owner is to generate the concept of the most attractive HR brand, stimulating people's desire to "consume" it. This is especially true in times of staff shortages.

In the "fight" for effective staff, companies have to invent new ways to attract and retain employees. This is part of the company's strategic development, in which the HR brand plays a crucial role. An HR brand is a powerful tool that can help any business succeed. Google is just one example of how a strong HR brand can help attract and retain the best talent, increase employee loyalty and motivation, and improve a company's image and reputation.

Creating and developing a positive HR brand should be a strategic measure, as systematic brand building is a prerequisite for creating a unique HR management system that will allow the company to gain a competitive advantage and ensure a constant increase in the value of labour potential and other assets.

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PERSPECTIVES OF UKRAINE-EU COOPERATION WITHIN THE ENLARGEMENT POLICY

The aim of this study was to analyze the potential benefits and challenges of Ukraine's integration with the European Union and define prospects and challenges of the process. This article analyzes the prospects for cooperation within the framework of the enlargement policy, considering both potential benefits and the significant challenges that lie ahead. On the basis of this research we can outline valuable insights into the future of Ukraine-EU relations.

The European Union's (EU) decision to grant Ukraine candidate status in June 2022 marked a pivotal moment in their relationship.

With the beginning of russia's full-scale invasion of Ukraine's territory we can witness an increase in the pace of our country's integration into the European community. The first thing that is needed to be done is defining the notion of integration. According to the Cambridge dictionary of English language integration is the action or process of successfully joining or mixing with a different group of people or the action or process of combining two or more things in an effective way [1]. Hence we can conclude that European integration is the unification of different countries into a single European community. In order to make this process efficient and effective, the EU pursues an enlargement policy.

The enlargement policy encourages states that want to become EU members to undergo democratic, economic and political transformations. According to Article 49 of the Treaty on European Union, any European state that respects the values set out in Article 2 (respect for human dignity, freedom, democracy, equality, the rule of law and

respect for human rights, including the rights of people belonging to minorities) and undertakes to uphold them may apply for membership in the Union. However, to join the association each country must meet certain requirements namely the Copenhagen criteria. According to the accession criteria, a state must have:

- Stable institutions that guarantee democracy, respect for human rights, the rule of law and the protection of minorities;
- A functioning market economy and the ability to cope with competitive pressures and market forces within the EU
- Able to assume the obligations associated with membership, including the ability to effectively implement the rules, standards and policies that are part of EU law, and to comply with the objectives of economic, monetary and political union.

Only after fulfilling these conditions and meeting the requirements of both parties a country can become part of the European Union. To facilitate the reforms and preparation for integration, the state can enlist the support of the association [5; 4; 3].

Ukraine is currently a candidate country for EU membership. In view of the above information, our country is not yet ready to become a full member of this association. Currently, we have stable institutions in the territory controlled by Ukraine that can ensure respect for human rights and the rule of law. We are fully prepared to assume all the obligations of a member state of the European community. We are committed to close cooperation and implementation of all EU standards and requirements. However, we are currently unable to ensure the high competitiveness of our products and services in European markets.

Due to the hostilities about 20% of the territory of our country was lost, which reduced our resource base and most of the enterprises located in these areas do not fall under the jurisdiction of Ukraine. Moreover, logistics routes were significantly affected. Ukraine has lost control over most of its ports and had to close its airspace, so we currently have only land and rail transportation available which is not enough to meet our export needs.

As a consequence of the constant missile attacks and the unstable situation in the power grid, we cannot ensure uninterrupted production of the pre-war volume of products. In addition, due to air attacks there are high risks of product damage during transportation. So, in our opinion, our top priority is to restore the territorial integrity and rebuild our country as soon as possible.

Challenges to Consider:

Ukraine's Readiness for Accession: Meeting the EU's stringent membership criteria, known as the *acquis communautaire*, presents a significant challenge for Ukraine. The country requires substantial reforms in its judiciary, anti-corruption measures, and human rights framework [2]. The ongoing war further complicates these efforts.

EU's Internal Capacity: The EU itself is navigating internal reforms and faces issues like Euroscepticism. Integrating a large country like Ukraine, with its substantial post-war reconstruction needs would require significant financial and administrative resources from the EU [6].

The historical precedent suggests a slow and complex path for EU enlargement. While Ukraine desires swift accession, the actual timeline hinges on its reform progress and the EU's internal capacity. Discussions surrounding alternative models of cooperation, such as the European Political Community or the Continental Partnership, are ongoing and could serve as stepping stones towards full membership.

Overall, EU-Ukraine cooperation within the enlargement policy presents both opportunities and challenges. The war and internal EU discussions add complexity. While full membership might take time, deeper cooperation is likely in the coming years. EU- Ukraine cooperation within the enlargement policy offers a path towards a mutually beneficial future that requires continued commitment to reform from Ukraine and an internal EU support.

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PROSPECTS FOR THE DEVELOPMENT OF RECREATIONAL ACTIVITIES ON THE TERRITORY OF THE SHATSKY NATIONAL NATURE PARK

Despite the changing situation in modern conditions, the demand for active recreation and tourism always remains relevant. A significant part of the population shows a desire to spend their leisure time in facilities that provide recreational services. Such forms of recreational rest, in addition to their popularity and accessibility, have significant opportunities for improving the health of vacationers, as well as their emotional well-being, enriching them with aesthetic impressions from what they have seen.

Such a recreational area includes Shatsky Park. It includes the unique Polish natural complexes of the Shatsky Lake District. These objects, without a doubt, are noted for their special environmental, health, historical, cultural, scientific, ecological, educational and aesthetic significance. As for the area of the National Park, it should be said that it is 48,977 square km. The bordering of the park with other territories also has its own specific features, because in different parts, it borders with different states (for example, with Belarus – from the Eastern part, with Poland – from the West) [1, p. 201]. The recreational significance of the park's geographical objects is primarily determined by its natural features. There are a large number of recreation centers, sports and children's camps, which also have a health-saving and health-restoring value.

Shatsky lakes of Ukraine are called "blue eyes of Volyn". They are located between the Pripyat and Zahidny Bug rivers. Shatsky National Park includes about 30 lakes. The most famous and large lakes are Svityaz, which is also called "Ukrainian Baikal" (27.5 sq. km.), Pulemetske (16.3 sq. km.), Luky (6.8 sq. km.), PISOCHNE (1.86 sq. km) [2, p.4].

The variety of water recreation from the use of resources of the ShNPP requires a differentiated approach to solving the problems of recreational water use for different bodies of water (rivers, lakes, reservoirs). Recreational activity in modern conditions is becoming one of the most promising branches of the economy and is becoming global. Humanity is increasingly aware of the importance of tourist attractions, among which much attention is paid to the territories of national natural parks. At the same time, the park's administration makes a lot of efforts to develop recreation and improve infrastructure in its territories.

Effective management of recreation in national parks requires the placement of rest areas near tourist routes and highways. Recommendations for improving the tourist routes of the park include: improving the bicycle route, creating a historical and cultural route with a view of the park's attractions, restoring water routes, creating an international crossing etc. [1, p. 202].

We believe that, in order to coordinate excursion works along these routes, the park directorate needs to create a small recreation department, whose employees could

initially conduct such excursions, train future guides, and also, together with the scientific department of the park, study further possibilities for the development of this type of management on the territory of the park and the impact of such use on natural complexes.

We suggest that the listed tourist routes should be marked in accordance with the project of the national standard "Tourist Services: Marking of Tourist Routes", developed by a team of authors headed by Yaremchyshyn. Such marking involves groups of signs: delineation of the course of the path; informing; warning. It was developed in accordance with international requirements. Thanks to such marking, it is possible to provide comprehensive information about the listed routes and reduce the number of misunderstandings when passing certain sections of the path [3, p.77] .

Undoubtedly, such measures can only be implemented thanks to the significant and well-thought-out efforts of the park staff and local residents, which also requires significant investment. We are convinced that the implementation of such measures will be able to contribute to solving the problems of ecological content in this territory and will become a factor in improving the socio-economic development of the region of this territory.

The issue of rational use of the natural resources of the Shatsky National Nature Park, with the aim of preserving the valuable resources of this zone, is quite relevant today.

Development of a sewerage project is a promising way to improve the resources of the SNP; the problem of shallowing of Lake Svityaz; as well as the issue of cooperation with the Lublin Voivodship for the purpose of arranging a pedestrian crossing called "Adamchuky-Zberezhe", as well as the issue of preparing the SNPP for the holiday season; the issue of arrangement of the embankment road in the village Svityaz on St. October.

So, with proper organization, activity on the territory of the National Forestry will contribute to the socio-economic growth of recreation in the region. Therefore, this type of activity should be considered one of the most prioritized measures for improving recreational activities on the territory of the park.

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THE STATE OF TOURISM IN THE WORLD

Tourism is a global phenomenon that has been growing steadily for decades. In 2019, there were 1.46 billion international tourist arrivals worldwide, and this number is expected to continue to grow in the coming years. People can traveling to different places for leisure, business, or other purposes. It is a major contributor to the global economy, generating trillions of dollars in revenue and creating millions of jobs.

The history of tourism can be traced back to the ancient world, when people traveled for religious pilgrimages, trade, and exploration. In the 19th century, tourism began to develop as a mass phenomenon, thanks to the rise of railroads, steamships, and other forms of transportation.

Tourism is a complex industry that encompasses a wide range of activities, from visiting historical sites to enjoying nature. It can be defined as the temporary movement of people from their usual place of residence to another place for leisure, business, or other purposes.

Tourism has many benefits for both the host country and the tourists themselves. For the host country, tourism can generate income, create jobs, and promote economic development. For tourists, tourism can provide a chance to experience new cultures, learn about different places, and relax and have fun.

However, tourism also has some challenges. One challenge is that it can put a strain on the environment. For example, tourism can lead to increased pollution and water consumption. Another challenge is that tourism can lead to the exploitation of local people. For example, tourists may be willing to pay high prices for goods and services, which can drive up prices for locals.

Despite the challenges, the future of tourism looks bright. The World Tourism Organization (UNWTO) predicts that international tourist arrivals will reach 1.8 billion by 2030. This growth will be driven by a number of factors, including rising incomes, increased urbanization, and the growth of low-cost airlines.

The COVID-19 pandemic has had a significant impact on the tourism industry. In 2020, international tourist arrivals fell by 73% compared to 2019. However, the industry is expected to recover in the coming years. The UNWTO predicts that international tourist arrivals will reach 85% of pre-pandemic levels by 2023.

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MARKETING AT THE ENTERPRISE DURING RETAIL TRADE

Retail trade earns profits by satisfying the demand of the end consumer. Therefore, the company faces the task of attracting and retaining customers, increasing sales volumes at lower operating costs. For this, they are forced to constantly look for new marketing strategies. Under the conditions when the shortage of goods has been overcome and most stores offer a similar assortment of goods and provide diverse and high-quality service, it becomes increasingly difficult to expand the circle of consumers. This forces many retailers and enterprises to reconsider their attitude to marketing and implement modern marketing strategies in their trading activities. [1]

One of the types of such a strategy is a marketing complex or marketing mix. The marketing complex is a set of marketing tools that, during the analysis or research of the product or the same enterprise, directs the marketing efforts of the enterprise to achieve a certain economic goal in the target market. During complex marketing, we can analyze 4 components of the enterprise for further successful sales of goods. These components are: product, price, place, promotion. Such an analysis is aimed at positioning the product on the market, as well as analyzing competitors, thereby increasing sales and promoting the activity and the company itself (business, enterprise) on the market, achieving the company's market goals (with the help of various marketing models). [4]

The "price" tool of the marketing mix includes not only the cost of the consumer's product and its pricing, but also other costs such as travel, time, emotions, etc. From a marketing perspective, pricing is a complex retail pricing process because a store does not just sell a product or service, but sells it as its own product. Starting with the marketing department of a retail company, the problem or task of setting prices arises. Pricing, in fact, is a commercial markup that takes into account the final price of a particular product. Price is one of the key positioning factors, so all decisions related to pricing strategy are very important. [1]

The combination of various marketing tools is selected so that the optimal effect is achieved within the framework of the selected goals. In various sectors of the economy, the marketing complex undergoes specific changes due to its own characteristics. Changes in the marketing mix reflect the flexibility of marketing approaches to solving specific business tasks and problems, developing and achieving set goals, and this inevitably leads to the transformation of traditional elements of the marketing mix. Emergence can lead to new components. But, of course, everything depends on the direction of such marketing solutions chosen by entrepreneurs for retail trade: achieving high profits due to large volumes of customer service with relatively low turnover of products or maintaining relatively low levels of profits due to high turnover of products and limited volumes of services. [3]

The most relevant marketing measure for promoting a product or enterprise in any market is advertising. Maximum promotion and recognition of the product or service or the enterprise as a whole is possible only with complex applications. Advertising often helps to survive in a competitive environment. Successful development of an advertising campaign requires several stages.

Having analyzed all of the above, it is possible to draw certain conclusions about the role and place of marketing in retail trade and the development of retail trade itself as a certain type of business structure. It can be clearly said that retail trade has developed very quickly. This made it possible to open new types of business and earn profits. With the help of such a type of business as retail trade, more and more people have realized their thoughts about opening their own business, but this kind of trade has its pros and cons, so only a few have been able to reach the top. It should be noted that marketing plays a very large role in all aspects of promotion and sales. With the help of marketing and its systems, for example, advertising as promotion, it is possible to determine the purpose of a particular business. Research and analyze your future customers, and make sure that the business idea does not fail.

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THE IMPACT OF SUPTECH, REGTECH AND FINTECH ON THE FINANCIAL SECTOR

The modern world is developing rapidly, and this applies not only to technology but also to the financial sector. The emergence of FinTech, RegTech and SupTech shows that traditional approaches to regulation and business need to be updated. Almost all businesses rely on digital financial systems to process business transactions. Therefore, Fintech, Regtech, and Suptech are three distinct stages of digital finance implementation, and each plays a role in expanding the scope of digital financial services. Let's compare FinTech, RegTech and SupTech by key features (Table 1).

| Characteristic | Fintech | Regtech | Suptech |
|---------------------------|--|---|---|
| Gist | Aims to offer innovative technologies that can transform the way customers interact with financial services | Specialises in automating, managing and optimising compliance operations for organisations | Includes technology solutions that assist financial regulators in verifying and managing compliance |
| Reason for implementation | It helps to introduce a personalised approach to the use of financial services with better accessibility, ease of use and convenience, and aims to improve financial inclusion | The main goal is to ensure that financial institutions comply with relevant standards and regulations. Regtech's tools help firms manage and navigate the complex regulatory environment, which can help them avoid fines and penalties | Essential for transforming financial reporting by providing supervisors with better tools to monitor new types of fraud |
| Target users | Banks, financial service providers and users to improve financial inclusion and financial service delivery | Fintech companies, cryptocurrency exchanges, banks, brokerages, non-banks and credit unions | Financial authorities to use data to identify emerging risks in financial services |

Table 1. Comparative characteristics of technologies

The analysis of the differences between Fintech, Regtech and Suptech strategies suggests that they all use technology and innovation to improve financial services. Fintech helps banks and financial institutions provide personalised services to their customers. Regtech focuses on solving problems related to compliance with relevant regulatory requirements in order to avoid penalties. In turn, SupTech is a powerful control resource for regulators to monitor new types of fraud.

In summary, SupTech, RegTech and FinTech are innovative technologies that have great potential to improve the functioning of the financial sector. Their implementation can increase the effectiveness of supervision, reduce risks, strengthen consumer protection, and promote innovation.

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ANALYSING THE IMPACT OF SOCIAL MEDIA ON ENTERPRISE PROFITS

The activity that people demonstrate on social media is truly amazing. They spend a lot of time on various platforms, using them for work, leisure and communication. The average user views about a hundred posts a day in the most popular networks [1]. It is also worth mentioning that it is on various social platforms that modern trends are created and closely followed by our users. And the ability to recognise and use these trends in time allows brands not only to maintain an active online presence, but also to build a connection with their audience to better promote their brand in the future. So, social media can be viewed as a great way to promote goods or services, as the goal of marketing is to be where the customers are.

Consumers show a strong interest in customer experience and feedback from other users before choosing a particular product or service. When customers see positive reviews and read real-life experiences of a brand product or service from an unbiased party, the level of trust to that brand can be significantly improved. In the contrary, a potential customer facing only negative reviews or no reviews at all will show no interest and trust to us. Consequently, we will not be able to sell the product or service.

Brands that are actively developing and improving their own digital platforms for selling products or services enjoy a significant advantage among customers. This sales method allows for direct access to the entire range of products available, improved personalisation of service (tailored to the individual user), and quality control. Such approach helps to increase customer loyalty and ensures effective interaction with the audience. The ability to order products from anywhere in the world with the Internet access and at any time has become a significant advantage of modern digital sales platforms. All of these advantages create a comfortable environment for customers and increase the number of satisfied clients.

As a result, companies need to create their own pages on social media, create high-quality content and promote it. It caused the origin of social media marketing (SMM) strategies. After all, specialists in this field effectively build relationships with customers and contribute to the development of the customer's business. One of the biggest benefits of social media for entrepreneurs is the increased scope together with the accessibility it provides. In the past, to start a business often meant to rely on the support of a limited circle of friends and family members, as well as traditional advertising methods including local newspapers and flyers to attract new customers. Owing to the emerge of social media, entrepreneurs now have access to a huge global network of potential customers at their fingertips. Social media platforms such as Facebook, Twitter and Instagram enable entrepreneurs to reach a wider audience than

ever before, regardless of their location or budget. The extended coverage and accessibility have opened up new opportunities for entrepreneurs and helped to align “game” conditions, empowering small entities with the same chance for success as larger famous companies have [5].

In addition, social media provide companies with the opportunity to build their brand and demonstrate their value proposition, which can be critical in seeking investment. By creating a strong brand and building relationships with both customers and investors, companies can increase their chances for success in raising funds. Whether through crowdfunding, seeking investment from venture capital firms or other funding opportunities, social media provide a platform for companies to showcase their ideas and reach a wider audience, increasing their chances to succeed.

Having analysed the statistics of the world social media from September 2022 to September 2023, we can emphasise Facebook to be the most popular platform. On Facebook, as well as on other media platforms, it is important to monitor the effectiveness of your work to understand whether you are achieving your social media goals. For this purpose, three metrics (coverage, involvement and action) are usually used. Coverage doesn't mean that every fan reads your content, but it indicates the relative size of your potential audience. The involvement rate points out how many people reacted to the content posted in a certain way. This is an important Facebook post metric that lets you know how well you're connecting with your potential audience and how it motivates them to take action. In particular, the metric includes likes, views, comments, and shares. The action metric measures specific actions that visitors take after interacting with the posted content: for example, going to a specific website, registering, buying a product, downloading a mobile app, etc [2].

These indicators should be considered and included to the company's marketing strategy. The coverage metric helps determine the number of people engaged and define the amount of audience that interacts with the content manager's posts. The involvement metric helps to identify the popularity of different types of content. The action metric helps determine the measure of how well posted content causes the visitor to undertake specific steps, i.e., refer to a website and buy a product or service online. Using these indicators, a company can more effectively analyse the results of its strategy, optimise content and tactics to achieve better results and determine their impact on the business.

The conversion rate analysis is viewed as one of the ways to analyse the social media impact. This method focuses on measuring how effectively social media efforts are transforming into actual conversions and sales. By tracking key performance indicators such as click-through rates, conversion rates, and revenue generated from social media traffic, companies can directly examine the relationship between social media activity and financial performance. By analysing conversion rates, they can learn which activities are most successful in driving conversions, enabling them to allocate resources more effectively and optimise their strategies to maximise profits.

Analysing the impact of social media on business profits is becoming increasingly important in today's business environment. The future of social media and its impact on businesses is uncertain but exciting, as new technologies and

opportunities emerge every day. Functioning in the digital age, businesses have realised that social media is not only a place to communicate with customers, but also a powerful tool to increase profits. Examining analytics and metrics on social media platforms can point out to campaigns and strategies generating the most revenue as well as find out the ones needing an adjustment. By tracking the connection between social media activity and increased sales or new customer acquisition, businesses can optimise their marketing and advertising strategy, which directly impacts their profits. Thus, analysing the influence of social media on profits is becoming an essential part of a successful business strategy in the modern world.

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ORGANISING THE WORK OF THE CAFE RESTAURANT ENTERPRISE

The organization of work at the café restaurant enterprise presents a complex and responsible process that requires a deep analysis of market trends, effective personnel management, implementation of innovative technologies, and the creation of a unique customer experience. A café, as part of the restaurant business, has its own peculiarities and challenges that demand a systematic and professional management approach.

One of the key components of a successful café is the analysis of market conditions and identification of competitive advantages. In the face of constant competition, it is important to understand the tastes and preferences of the target audience, study trends in gastronomic culture, and offer products that meet modern consumer perceptions.

Effective café management also depends on organizational structure. Optimizing workflow, rational distribution of functions among staff, and considering customer

service specifics all influence the quality of service and the overall success of the establishment.

The application of innovative technologies in café operations may include automating ordering processes, using software solutions for inventory management and accounting. This allows for improved service efficiency and more precise business process management.

The managerial aspect plays an important role in the café's stability. Choosing the right human resources management strategy, motivating staff, and fostering team spirit contribute to increased productivity and creating a positive work atmosphere. Furthermore, building a strong brand and advertising play a key role in attracting customers. Creating a unique café image contributes to expanding the customer base and developing consumer loyalty.

The financial management aspect includes budgeting, financial analysis, and rational resource utilization. Ensuring the café's financial stability is crucial for its long-term and successful operation.

Equally important is ethics and responsibility in café work. Consumers are increasingly paying attention to the social responsibility of businesses, so it is important to consider these values in the establishment's activities. Interaction with the local community, supporting environmental initiatives, and participating in charitable events can positively impact the café's reputation and its relationships with customers.

In general, organizing the work of a café restaurant enterprise requires an integrated approach and continuous improvement. Proper management, strategic planning, innovation, and attentive consideration of customer needs are key factors for success in this competitive industry.

In the modern world where gastronomic trends are constantly evolving, a café must be prepared for continuous upgrading of its concept and adaptation to new market realities. Specifically, the role of innovation in the restaurant industry, especially in a café, is important not only in utilizing modern technologies but also in a creative approach to creating a unique product and service.

One important direction in café management is creating a unique customer experience. This means that each customer visit should be special and memorable. It may include not only delicious coffee and dishes but also atmosphere, service, and individual approach to each guest.

Personnel management also plays a crucial role in achieving high-quality service. Training, development of professional skills, and staying updated on hospitality industry trends help create a team of experts ready to satisfy even the most demanding customers.

Advertising and marketing are important not only for attracting new customers but also for retaining a loyal audience. Social media, customer loyalty programs, organizing promotions, and events all become integral parts of a successful café strategy.

A scientific and research-based approach to market analysis, competitor analysis, and implementation of advanced technologies allows a café to stay at the forefront. Active participation in gastronomic events, competitions, and awards can

enhance the prestige of the establishment and attract the attention of critics and connoisseurs.

Collaboration with local suppliers, use of sustainable materials, and environmentally friendly products can emphasize the café's social responsibility and contribute to building a positive image in the eyes of consumers.

All these aspects of café organization unite into one comprehensive approach aimed at achieving high-quality service and stable operation. Founded on quality, innovation, and deep understanding of customer needs, a café can become not only a place for coffee drinking but also a centre of gastronomic experiences and positive emotions for its guests.

To ensure the café functions effectively, it's important not only to maintain a high service standard but also to continuously develop its menu. Competent menu development and regular assortment updates allow satisfying diverse customer tastes, attracting new guests, and retaining loyal customers. Taking into account modern gastronomic trends and using exotic ingredients can become important components of competitiveness.

However, the success of a café also depends on its image component. From interior design to service style, every aspect shapes the overall impression of the visit. Creating a pleasant and cozy atmosphere can turn the café into not only a place for drinks but also a place for relaxation and socializing.

Equally important is the role of technical infrastructure. Using modern coffee machines, equipment for dessert preparation, and innovative culinary solutions not only increases productivity but also expands opportunities for creative ingredient use.

The success of a café is also determined by its ability to interact with the local community and partners. Collaboration with local artists, craftsmen, and organizing events for the public can serve not only as a way to increase awareness but also as a way to contribute to the development of local culture.

In conclusion, it is important to note that the success of a café is a continuous process of adaptation and improvement. Listening to customer feedback, analyzing market trends, and openness to innovation help create an effective development strategy and ensure long-term existence in the modern restaurant industry.

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RECREATION IN THE CARPATHIAN MOUNTAINS

The aim of this study was to investigate the physiological comfort, emotional and psychological impact of the forest on the Recreation in the Carpathian Mountains. On the basis of this research the data from different material were received.

The Carpathian region within Ukraine is a unique natural mountain-forest ecosystem that occupies 37,000 km², or 6.1% of the entire territory of the country. These are a kind of "lungs", where three-quarters of the Dnister, Prut, Tysa and other large European rivers are formed. The most valuable natural resource of the region is the forest, which occupies a special place. This is the most perfect natural complex, which produces more than 20 thousand types of products. This climate regulator, has an irreplaceable water and soil protection value, and is a place of recreation, tourism, people's health, etc.

The forests of the Ukrainian Carpathians are characterized by high productivity. The average annual biomass accumulation of only trunk wood and branches, without taking into account the organic mass of root systems, undergrowth, undergrowth, and grass cover, is 5.8-8.2 m³/ha for certain tree species. Forest plantations of the Carpathians absorb 12.8 million tons of carbon dioxide and emit 9.8 million tons of oxygen every year. On average, 1 hectare of forest absorbs 8 tons of carbon dioxide and emits 6.1 tons of oxygen per year.

The biological activity of oxygen depends on the degree of its ionization. Ionized air increases the activity of respiratory enzymes, relieves fatigue, improves well-being, and contributes to the treatment of bronchial asthma, hypertension, atherosclerosis, and pulmonary tuberculosis. In forest air, oxygen ionization is 2-3 times higher than in sea air, and 8-10 times higher than in the atmosphere of industrial cities. In 1 cm³ of forest air, there are 2-3 thousand light ions, while in the same amount of air of large industrial cities - 220-400, and in closed crowded rooms - only 25-100. The presence of light ions with a negative charge is considered an indicator of the purity and freshness of the air.

Fir, larch, birch, common and red oak, rowan, and other trees and shrubs ionize the air well. In pine forests, oxygen ionization is 2 times higher than in deciduous forests. Carpathian forests are characterized by high oxygen productivity. This is important: the oxygen released by forest vegetation is carried by the wind over considerable distances, improving the air composition of industrial cities [1, p.245].

The microclimate of the forest is advantageous, it differs from the microclimate of the city, first of all, in that little solar radiation penetrates under its tent. More than half of it is reflected by tree crowns into the atmosphere, part is absorbed by leaves and needles for photosynthesis and transpiration, and only 4-12% reaches the soil surface. If at noon above the crowns of trees, the amount of solar radiation is 0.95-1.00 cal/cm² per minute, then only 0.05-0.12 cal, or 8-20 times less, reaches the surface of the soil.

Of course, it depends on the composition and structure of stands, closed crowns, the presence of undergrowth and undergrowth, etc.

Lighting, temperature, and humidity of the air and soil depend on the amount of solar radiation. Under the canopies of closed beech, fir, and spruce stands, lighting even at noon in cloudless weather is only 3-5% of the lighting in an open place, in oak stands - 6-9%, in birch stands - 11-14%. In the Carpathians, in each forest massif, there are plantations with a different composition of tree species, with dense and sparse stands, under the crowns of which different microclimatic conditions are created. Visitors without much effort can always find places for rest with suitable conditions for them.

However, not only physiological comfort is important for a person. The emotional and psychological impact of the forest is no less important. With the modern development of science and technology, some sanitary and hygienic functions of the forest can replace technical means, for example, an air conditioner, or an ozonator (creation of an artificial microclimate, etc.). But nothing can replace the positive emotional and psychological impact that a person receives from communication with living nature. With the development of industrialization and urbanization, the aesthetic role of forest plantations is growing significantly.

The emotional and psychological impact of the forest is determined by its aesthetic qualities. They appear due to human perception of the beauty and dynamism of forest landscapes, and the variety of characteristics of forest plantations. For whatever purpose a person comes to the forest, his first glance is always on its general appearance, on the surrounding trees and bushes, on the richness of the grass cover.

A questionnaire survey in the Carpathians showed that 65% of vacationers are attracted to coniferous plantations, and 35% to deciduous ones. Almost 50% of respondents prefer old plantations, 40% - medieval, and only 10% - young.

Pure and mixed forests are found in the Carpathians: oak, beech, fir, spruce, oak-beech-fir, beech-fir-fir, as well as hornbeam, birch, aspen, alder, and others. And every forest is attractive in its way. Only the flora of higher spore and flowering plants has more than two thousand species. Vascular flowering plants have the greatest value - trees, shrubs, and herbaceous plants, of which there are about one and a half thousand species. All these are natural resources of food products and medicinal and technical raw materials. Almost 350 species of wild plants have medicinal value and are widely used in folk medicine (just over 200 species are officially recognized as medicine). About 20 types of plants contain tannins and 18 types - dyes [3, p.138].

Carpathian forests are rich in plants with decorative flowers. These are white snowdrops, blue snowdrops, white and yellow anemones, purple liverworts, and saffron, fragrant lilies of the valley. Many plants produce fruits of high taste qualities. These are witch strawberries, and "cosmic" berries - blueberries, healing lingonberries, fragrant raspberries, blackberries, etc. The fruits of the modest ancestor of the "queen of flowers" - rose hips, bride of the forest - mountain ash, red viburnum, and others have important medicinal and nutritional value.

The Carpathian forests are rich in diverse fauna. There are 435 species of vertebrates alone. All the main classes of animals are widely represented here:

mammals, birds, reptiles, and amphibians. However, mammals and birds adorn the forests. There are 74 species of mammals in the Carpathians, which is almost 77% of the composition of mammals in Ukraine. Among them are ungulates, insectivores, rodents, bats, and, of course, predators.

Among the even-toed animals, the Carpathian aborigines are the most common: red deer, European roe deer, and wild boar. However, they are rare in suburban forests. Deer prefer dense young beech and beech-spruce forests. They go high into the mountains, up to the meadows. They feed on plant food: grass, branches of trees and bushes, acorns, and beech nuts. Deer and roe deer are the decoration of forests, besides, they have an important industrial value. Wild pigs live in herds mainly in beech, fir-beech, and spruce-beech forests, which have a significant supply of fodder. But in acorn-bearing years, they can also be found in plain and foothill oak forests. Moose are occasionally found in the forests [1].

The Ukrainian Carpathians are characterized by rich recreational resources. An important component of these resources is the forests with the mineral springs available in them. This leads to the wide development of inpatient treatment and health facilities and various types and forms of people's recreation. The most common types of forest recreation in the Carpathians are medical, recreational, sports-tourist, utilitarian, and educational.

Medical recreation is of particular importance, the main purpose of which is the treatment and prevention of diseases. It is based on the use of the healing properties of forests in combination with mineral waters, mud, baths, and climate therapy. Thus, in the Transcarpathian region, based on the use of hydrogen carbonate-sodium, sodium-calcium, and chloride-sodium waters, there are balneological sanatoriums such as "Synyak", "Soniachne Zakarpattia", "Poliana", "Kvitka polonyny", "Shaian", "Hirska Tysa", "Verkhovyna" and climatic health resort "Karpaty". In the foothills of the Lviv region, the balneological sanatorium-resort complexes of state importance Truskavets and Morshyn are widely popular, the mineral waters of which are successfully used for the treatment and prevention of diseases of the digestive organs, liver, and kidneys. In the Ivano-Frankivsk region, the climatic sanatorium-resort complexes of Yaremche, Vorokhta, Kosiv, and the balneological-mud resort of Cherche are of greatest importance. There are also climatic sanatoriums in the Chernivtsi region. Sanatoriums and sanatorium-resort complexes of the Carpathians make it possible to treat more than 700,000 people annually.

Therapeutic recreation is carried out, as a rule, in stationary, long-term, and organized forms. Equally important is health recreation, which is based exclusively on the use of the healing properties of forests, its purpose is to restore people's working capacity, and relieve physical and nervous stress. It is carried out both in stationary and non-stationary forms.

However, non-stationary or self-made rest in the forest is the most popular. In the summer, tens of thousands of people go on weekends to the suburban forests, which are well connected by transport.

As a rule, health recreation is to some extent combined with utilitarian and cognitive recreation. The use of forests for mass recreation of the population is steadily

increasing. Improving public transport, increasing the number of vehicles for individual use, building new roads - all this significantly expands the possibilities of non-stationary recreation.

The leading place in the Carpathians is occupied by sports and tourist recreation, which combines sports, tourism, hunting and fishing. 14 sports bases and camps, 36 tourist bases, their branches, and shelters are at the service of athletes and tourists. About two million tourists from different parts of the country come to the Carpathians every year. A major sports base of state importance is "Ukraine" in Vorokhta. Provincial tourist centers - "Prykarpattia", "Hutsulshchyna", "Silver Falls", "Carpathian Stars" in Ivano-Frankivsk region; "Dawn", "Latoritsa", "Narcis", "Trembita", "Tysa", "Hoverla" are in Transcarpathia. Tourist routes of state importance pass through picturesque mountain forests to the highest mountain Hoverla [2, p.78].

The most massive and unorganized is utilitarian recreation, which combines the amateur collection of mushrooms, wild berries, nuts, medicinal plants, and flowers with recreation in the forest. Almost all forests are covered by this type of recreation - from the foothills to the highlands. During the ripening of berries, nuts, and the appearance of mushrooms, tens of thousands of residents of cities and villages go to the forests, often at a considerable distance from populated areas.

In the Carpathians, resort forests are allocated around all sanatoriums and sanatorium-resort complexes with a total area of 34.5 thousand hectares. The supply of resort forests is quite high. With the norm of 0.15 hectares of forested area for one resort site for balneological resorts, there are 0.7 hectares in Zakarpattia Region, 0.4 hectares in Ivano-Frankivsk, and 0.3 hectares in Chernivtsi. Over the past 20 years, the area of these forests has almost doubled. In the Carpathians, the largest balneological sanatorium-resort complexes are Truskavets and Morshyn in Lviv Region, and sanatorium complexes "Poliana", "Sonyachne Zakarpattia" and "Kvitka polonyny" in Transcarpathia, around which significant areas of resort forests are allocated.

So, the current stage of social development is characterized by the growth of the role of recreation in the process of restoring human strength. Today, it affects not only the recovery of the workforce, but also the person as a whole. The restoration of the labor force covers a complex of social relations associated with the main restoring force - man. Therefore, the Carpathian forests are a must-have place for recreation.

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BUSINESS DEVELOPMENT DURING THE WAR

The aim of this study was to investigate business development in Ukraine during the war.

Unfortunately, the country is at war, every part of it is suffering, the economy is collapsing. For a year and a half, Ukrainian business has been operating in the conditions of a full-scale war. Despite numerous problems, it not only survived, but also began to develop quite actively in 2023.

Despite all the obstacles, 30% of companies plan to grow, and 36% plan to increase the number of employees. Let's take a closer look at the problems faced by small and medium-sized businesses in Ukraine, how they solve them, what kind of assistance they receive, and what prospects they have for the future.

What small and medium-sized businesses are currently operating in the market

The outbreak of the war dealt a devastating blow to Ukrainian business. According to general estimates, the losses of SMEs (small and medium-sized businesses) amounted to more than USD 83 billion. About 10 million Ukrainians were displaced, some of them became IDPs, and the majority went abroad.

The situation has changed dramatically over the year. A large number of companies have returned to the market, and a significant part of the workforce has also returned. While in 2022, businesses were operating in survival mode, unable to plan their work even for the next year, companies have now adapted to the new environment and are drawing up full-fledged 2-3-year development plans [3].

Problems faced by businesses

According to a survey conducted by the American Chamber of Commerce in Ukraine, the most important problems of doing business and developing business in Ukraine are

Problems faced by businesses

- missile attacks on business assets and critical infrastructure;
- health and mental state of employees;
- decline in economic and consumer activity;
- access to electricity, water and heat supply, and mobile communications;
- attracting and retaining top talent;
- problems with transportation and logistics.

Representatives of small and medium-sized businesses also point to increased pressure from government agencies and regulatory challenges, lack of and low solvency of customers, etc [1].

How businesses adapt to work in wartime

The vast majority of entrepreneurs have been addressing the needs of small and medium-sized businesses on their own. Since the beginning of the war, a large number of companies have taken the following measures to maintain their operations

- relocation - hundreds of small and medium-sized enterprises were moved to the central and western regions due to the hostilities;
- adaptation of products and services to modern needs - companies have re-qualified for goods and services that are in high demand right now, such as the production of long-term storage products, sewing clothes for soldiers, UAV production, etc;
- increasing the volume of imported goods;
- obtaining loans on favorable terms, etc.

The development of small and medium-sized businesses is driven by the resilience and ingenuity of entrepreneurs who, even in difficult times, are not ready to close their own business [1].

What unites businesses that have not only survived, but are growing

Unfortunately, small and medium-sized businesses are often not about consistency, but about a puzzle system that works in a certain geographical location, with certain people doing certain things. But when you take out one of the elements in this puzzle, everything collapses.

Only those businesses that are able to operate even when several elements are missing can grow.

Along with the extraordinary unity and cooperation within Ukrainian society, we see business interaction.

Those companies that have found new partners, launched joint projects, successfully cooperated even with competitors after relocation, and coped with challenges.

Choosing the right region is important for the development of relocated businesses. For example, if a company is engaged in online sales, it would be logical for it to move to Khmelnytskyi, where there is a large logistics hub of Nova Poshta. This means that the next day after the shipment, their customer will already receive the ordered goods.

If we talk about external factors of success, first of all, it is the market. Those businesses whose market did not disappear with the onset of the war have survived and are developing, or they were able to enter another market that works. In particular, the IT industry and outsourcing businesses have lost the least, as their main resource is staff with access to the Internet. Secondly, these are activities in regions that have not been exposed to serious risks. Where people have evacuated. Thirdly, exports, provided that the logistics are not affected. Fourthly, the production and sale of essential goods and food. And finally, the ability to switch quickly. for example, reorientation from B2B to B2C [2].

Utilizing new opportunities

Surprisingly, martial law not only closes certain doors but also opens new ones. For example, the number of orders for the defense industry has increased. Public

security rules are stricter, and this allows certain companies to increase sales of relevant products (e.g., fences) [2].

The fact that exports of products that have traditionally been shipped by sea are currently difficult due to logistics is also an opportunity for some.

To sum up, Ukrainian entrepreneurs should overcome difficulties on the way to development by transforming their business. And banks, including Oschad, with the help of numerous partners, should help businesses not only survive the war but also gradually develop.

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IMPACT INVESTING IN THE CONTEXT OF UKRAINE'S ECONOMY DEPLETION

In the conditions of Ukraine's exhausted economy the concept of impact investing, related to the capital contribution to positive changes in a world full of complex social and environmental challenges [1], is emerging as a true beacon for transformation. Through the pursuit to ensure a measurable social and environmental impact on the economy alongside the enterprise financial performance, impact investing has carved out a unique niche in both emerging and developed markets. At this point, Ukraine acts as a platform where the principles of impact investing can be applied to rejuvenate not only its economic base, but its social structure as well.

Ukraine's investment attractiveness is driven by various factors. A developed infrastructure in particular, available labor and energy resources contribute to the creation of a competitive economic environment. In addition, investors safety is guaranteed by the fact that nationalization of foreign direct investments is not allowed in our country. With a large domestic market, a well-educated and cost-competitive workforce, and abundant natural resources, Ukraine offers ample opportunities for parties interested in investing.

The government's commitment to improving legislation underscores its determination to fully exploit this potential. Numerous US companies are attracted to

the country's agricultural, consumer goods and technological sectors in particular thanks to a powerful agricultural industry (making Ukraine the world's second largest grain exporter), a skilled workforce succeeding in IT -services, as well as software research and development.

Despite the fact that impact investing is relatively new for Ukraine, there is a significant level of interest and involvement from both the public as well as potential and existing investors [2]. A short-term focus should especially be centered on eliminating immediate risks to human health and the environment, which involves complex environmental cleanup efforts, with a particular emphasis on the collection, safe disposal, and recycling of significant volumes of military equipment and other wastes to reduce immediate threats to public health. In addition, there is an urgent need to repair and restore more efficient environmental infrastructure, ensure the supply of safe drinking water, proper sanitation and waste management. The prioritization of these actions should be based on the actual and potential impact on public health.

In the long-term perspective, the process of post-war economic development can serve as a catalyst for Ukraine's profound transformation towards a 'green economy', i.e., a zero-emission economy. This transition promises an enhanced economic efficiency, increased competitiveness in European and global markets, and improved population welfare. Since significant funds are expected to be channeled towards reconstruction, it is crucial to ensure these financial flows contribute to the achievement of environmental and 'green' goals. In addition, Ukraine should maintain its overall commitment to modernizing environmental protection institutions at both national and regional levels, thereby ensuring a robust administrative capacity to plan and implement environmentally sustainable recovery activities, while enabling transparency, professionalism, a risk-oriented approach and focus on achieving desired results [3].

Based on the positive experience and results observed in foreign countries, where state support for impact investing and the creation of appropriate infrastructure is a common practice, it becomes obvious that there are promising prospects for the growth of impact investing in Ukraine. However, it is worth noting that currently there exist a lack of conceptually developed mechanisms and appropriate institutional environment that highlights the need to develop and implement clear rules and structures that will facilitate impact investments.

Over the previous decade, Ukraine has witnessed significant investments, both domestic and foreign, totaling about \$12 billion in renewable energy. These investments have led to the development of significant renewable energy capacity: 60 GWh of solar power, 320 GWh of onshore wind power and 251 GWh of offshore wind power. Currently, solar and wind energy meet about 5% of Ukraine's energy demand, demonstrating the potential for sustainable energy investment as a vital component of impact investment strategies in Ukraine's depleted economy [4].

In the context of impact investments in Ukraine's depleted economy, the post-war recovery of the energy sector will be intrinsically linked to the broader national economy revival with a focus on sustainability, decarbonization and high energy efficiency criteria. To succeed on this path, Ukraine must effectively apply its domestic

potential and enlist the partner countries' support. A positive outcome in attracting international investors will depend on the adoption of a clear, long-term decarbonization policy, aligned with the European Green Deal, combined with transparent and fair access to auctions to obtain permits and licenses for the construction and operation of energy infrastructure within the national energy market.

Restoring production capacities, rethinking of the agricultural sector as a leading industry and activation of domestic business entities in the context of the European integration requirements may appear to be an overwhelming task. Amid these challenges, however, there is a glimmer of hope in the form of strategic initiatives that converge at the intersection of economic and environmental progress.

The synergy of environmental initiatives is crucial as it offers a dual opportunity: not only does it pave the way for sustainable growth, but it also responds to the global shift towards environmentally conscious practices that is becoming an urgent need, encouraging businesses and industries to reduce their carbon footprint, minimize waste and contribute sustainable management of the economic resources involved. Moreover, creating a favorable environment to realize the full potential of the human factor as a driving force of production capabilities is a top priority. This implies investing in education and skills development to empower the workforce, as well as creating an environment conducive to innovation, entrepreneurship and creativity. These key elements are the cornerstone on Ukraine's path to economic revitalization and attracting impact investments at both micro- and macroeconomic levels of the country.

In the coming years, Ukraine's attractiveness to foreign investors will depend on the successful progress of its European integration and the government's efforts to further simplify access to the domestic market and improve the business environment. The endeavor also includes improving access to energy resources, manufacturing, wholesale and retail markets, and export opportunities to other countries. Under such conditions, Ukraine's energy sector can expect a significant level of interest from both domestic and foreign investors, which will lead to substantial inflows of capital, the latest technologies and the attraction of qualified personnel able to contribute to the country's socio-economic recovery [5].

Thus, considering economic challenges Ukraine is currently facing, impact investing has become the force that has transformed investment activity, focusing on ensuring social and environmental influence on the economic system alongside the enterprises financial performance. This approach provides Ukraine with a unique opportunity to rejuvenate its socio-economic base by capitalizing on factors such as developed infrastructure, available labor force, energy resources and a large domestic market.

Being a relatively new phenomenon in Ukraine, impact investing, however, is attracting strong stakeholders' interest, especially in solving problems related to environmental risks. In the long term, Ukraine has the potential for transition to a 'green economy', which will promote the increase in economic efficiency, competitiveness and general well-being of the population. Foreign experience suggests promising prospects for the growth of impact investing in Ukraine, although the country is currently experiencing a lack of clearly defined mechanisms and institutional

structures for its implementation. The post-war recovery of Ukraine's energy sector must be intertwined with a broader economic revival, emphasizing on sustainability and decarbonization, and attracting international investors will depend on clear, long-term policies and robust protective mechanisms.

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Session work № 4

CURRENT RESEARCH IN THE FIELD OF INFORMATION AND COMPUTER TECHNOLOGIES

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ARTIFICIAL INTELLIGENCE IN DECISION-MAKING SYSTEMS

The application of artificial intelligence is one of the most relevant topics of today, it is used in various fields, one of which is the field of decision-making systems. The use of artificial intelligence can assist in management, data analysis, and making informed decisions. This article will discuss the role of artificial intelligence in decision-making systems.

Conceptual provisions are considered regarding the construction of a decision-making system using artificial intelligence tools. The principles of building intelligent decision-making systems are presented, the corresponding toolkit is outlined. Emphasis is placed on the need to take into account risk in decision-making systems.

Artificial intelligence makes a significant contribution to the development of decision-making systems. It can analyze large volumes of data, identify complex dependencies, and make predictions. AI can use various algorithms and methods, such as machine learning, neural networks, and genetic algorithms, to achieve optimal solutions.

Examples of using artificial intelligence in decision-making systems:

- financial analysis: AI can analyze financial data and make predictions about investments, risks, and profitability;
- medical diagnostics: AI can analyze medical data and assist in diagnosing various diseases, search for effective treatment methods, and make predictions about treatment outcomes;
- supply chain management: AI can analyze data on supply, demand, and

other factors affecting the supply chain, and assist in making decisions about process optimization and cost reduction.

The advantages of using artificial intelligence in decision-making systems are:

- increased speed and accuracy: AI can process large volumes of data faster and more accurately than humans. This allows decisions to be made based on objective facts and analysis;
- detection of complex dependencies: AI can detect complex dependencies between different factors and find optimal solutions that may be inaccessible to humans;
- automation of the decision-making process: AI can automate the decision-making process, reducing dependence on the human factor and increasing efficiency.

So, it can be concluded that the use of artificial intelligence plays an important role in decision-making systems, helping to analyze data, identify dependencies, and make informed decisions. The use of artificial intelligence in decision-making systems has many advantages, such as increased speed and accuracy, detection of complex dependencies, and automation of the decision-making process. Examples of using artificial intelligence include financial analysis, diagnostics, and supply chain management. The application of artificial intelligence in decision-making systems contributes to improving the efficiency and quality of decisions made.

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APPLICATION OF AGILE METHODOLOGIES IN SOFTWARE DEVELOPMENT TO ENSURE HIGH QUALITY

Given the age of digitalization and intense competition in the software industry, IT organizations' potential to come up with great software products within the due date is the single most important aspect that determines their achievement as well as subsequent growth. The major outcome of addressing these problems has been the extensive utilization of agile methodologies within software development, forming a new wave paradigm of managing the work of development teams guided by values such as human resources, working software, collaboration, and readiness for change.

The Philosophy of Agile is embedded in the Agile Manifesto (2001) where the top values are stated as [1]:

1. Promotion of human resources and personal communication ahead of procedures and tools;
2. Another key point made by the authors in their statement is that "working software should be valued more highly than complete documentation." Coordinated customer collaboration during the contract negotiation [1].

The 12 Principles behind the Agile Manifesto include [2]:

1. Accept the changing requirements even in the late stages of development to use them to gain a competitive advantage for the client;
2. Ensure close day-to-day collaboration between developers and customers to maintain a steady pace of sustainable development, allowing sponsors, developers, and users to continuously support their efforts.

Agile Methodologies and Practices:

Leading Agile methodologies are Scrum, Kanban, Lean Software Development, and Extreme Programming (XP). They all have an iterative incremental approach where the development cycles are small, continuous integration is done with automated testing at each level of delivery, and customers and users actively participate in all lifecycle stages [2].

The Agile process is realized in Scrum by adopting explicitly short iterations (sprints) that take a maximum of 24 weeks; coordinated daily meetings, which are part of the control (Scrum meetings); defined cycles for regular sprint planning and reviewing intermediate results. Kanban is the other Agile methodology that applies visualizing the flow by means of Kanban boards, principles limiting work in progress, and considering improvement as an integral part of the software development life cycle [1].

Technical excellence, pair programming, code refactoring, and collective code ownership are all key engineering practices in XP methodology. Other effective agile practices include test-driven development (TDD), continuous integration and continuous delivery, early and often delivery, collective code ownership, and more.

Agile scaling of large programs:

For large software projects involving multiple teams, special scaled agile frameworks are used, such as Scaled Agile Framework (SAFe), Large Scale Scrum (LeSS), Disciplined Agile (DA), Nexus, etc. The goal is to ensure that work between teams higher up in the organizational hierarchy is properly coordinated while maintaining the operational autonomy and flexibility of individual teams at lower subsystem levels [1;2].

Benefits of agile for software quality:

Using agile methods makes the development process easily manageable and transparent for everyone involved, ensuring rapid adaptation to customer market needs and timely detection and elimination of errors in early stages. Activities such as continuous integration, automated unit testing, regular code refactoring, and code reviews greatly improve the technical excellence and system stability of software products. Customer involvement through direct representation of our team allows for a

better match between the functionality of our systems and their actual needs [2]. In addition to operational aspects, agile methods also have a positive impact on the "human element" and increase motivation, engagement and interaction within teams by focusing on self-organization and lateral connections, as well as collective responsibility for the end result.

In addition to operational aspects, agile methods also have a positive impact on the "human element" and increase motivation, engagement and interaction within teams by focusing on self-organization and lateral connections, as well as collective responsibility for the end result [1; 2].

Challenges of agile implementation:

Despite the obvious advantages, the successful application of agile methods requires a significant shift in the traditional hierarchical model of business management and workflow organization. Necessary conditions include the willingness of top managers to delegate broader authority and strengthen horizontal linkages between departments, thereby creating a culture that is open to constant change and its associated risks [1]. At the development team level, implementing an agile approach requires revisiting traditional roles, emphasizing cross-functionality and multidisciplinary and increasing the autonomy, initiative, and responsibility of each participant.

Additional challenges arise from the need to integrate agile practices into existing strategy and portfolio management systems for enterprise-wide programs and projects. Ensuring that the work of large, multi-component software scales and coordinates effectively can also be a complex task [2].

Flexible, agile software development methods have proven to be very effective in increasing the productivity of design teams and ensuring the right quality of software products from both a functional and technical perspective.

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DEVELOPMENT OF AN APPLIANCE FOR VIRTUAL MACHINE DEPLOYMENT WITH A WEB STACK

In today's world, the speed and efficiency of web application deployment are critical factors for successful business. With the number of websites globally reaching about 2 billion and growing rapidly, the workload on developers is immense. To alleviate this, the focus was on developing an appliance that automates and simplifies deploying virtual machines with a configured Web stack. This tool is designed to allow users to deploy websites without requiring deep virtualization and backend knowledge, thereby lightening the load on developers.

The first step was choosing a web stack to build an appliance. Although the IIS-ASP.Net (Core) stack is not the most popular for web development, its advanced capabilities are often overlooked. Manually deploying web applications using IIS-ASP.Net (Core) can lead to many problems and delays. Therefore, a tool was developed that automates this process, ensuring speed, reliability, and consistency and showcasing the true potential of the IIS-ASP.Net (Core) stack.

A web stack is a collection of tools and technologies to develop web applications and websites. The IIS-ASP.Net (Core) stack used in the developed appliance mainly consists of Microsoft products: the IIS web server, Windows Server 2019 operating system, SQL Server database management system, and Orchard Core content management system.

This work's second key component is optimizing the virtual environment's deployment. The strategies and techniques have been developed to optimize the deployment of web applications in the IIS-ASP.Net (Core) environment to ensure maximum performance and scalability. The research has demonstrated that a properly configured environment can significantly improve web application performance and reduce deployment time.

An equally important aspect is the safety and reliability of this tool. Significant efforts have been put into developing mechanisms that ensure virtual machines' safe and secure deployment with the IIS-ASP.Net (Core) WEB stack. These solutions protect against various threats and ensure the system's stability, instilling in our audience a sense of trust and security.

In conclusion, this appliance is the result of careful work and research. It will help many development teams simplify and speed up web application deployment.

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CONSIDERATION OF THE PACKAGE OF NECESSARY TECHNOLOGIES FOR BUILDING THE ORGANIZATION'S LOCAL NETWORK

In today's rapidly evolving business landscape, the efficiency and reliability of local network infrastructure are paramount for streamlined operations. As organizations increasingly rely on digital connectivity, the importance of a robust network architecture cannot be overstated. To address the complexities inherent in network management, a project was launched to optimize our organization's local network by considering a comprehensive package of necessary technologies.

The project began with a meticulous evaluation to determine the optimal network architecture. After carefully considering various alternatives, a framework was selected built upon essential protocols and technologies, including VLAN, PVST+, HSRP, and IPv4 addressing, due to their compatibility and proven efficacy within our existing infrastructure.

One key area of focus in this project was the enhancement of network segmentation and resource allocation. This is crucial as it directly impacts the network's efficiency and reliability. This was attained through the implementation of VLAN protocols.

Implementing PVST+ was crucial in ensuring network redundancy and resilience. By managing separate spanning-tree instances for each VLAN, we mitigated the risk of network loops and expedited recovery during link failures, minimizing disruptions and maintaining seamless connectivity.

Another significant step was the deployment of HSRP, which played a crucial role in facilitating automatic failover between routers. This further fortified the availability of our network, ensuring uninterrupted access to critical resources and services, and thereby enhancing the overall reliability of our network infrastructure.

Alongside these protocols, we also paid meticulous attention to IPv4 addressing strategies. This is a key aspect as it plays a significant role in streamlining resource allocation and fostering seamless communication across the network.

Additionally, paramount emphasis was placed on fortifying network security and integrity. Robust measures were implemented to safeguard against unauthorized access, data breaches, and network vulnerabilities.

This project represents a comprehensive approach to optimizing our organization's local network infrastructure. By considering a package of necessary technologies, including VLAN protocols, PVST+, HSRP, and IPv4 addressing, we aim to elevate network performance, bolster reliability, and enhance security measures, facilitating seamless digital operations and sustained growth.

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THE IMPORTANCE OF AUTOMATION PROCESS

Someone once said, “Laziness is the engine of progress,” and people throughout history have sought the possibility of working less and receiving more. Nowadays, it is not an exception. With the abrupt development of information technologies, more and more processes are automated, allowing people to focus on other problems or save enough time to rest.

Many companies, such as the International Labor Organization, World Economic Forum, and OECD, have been researching this issue. The most exciting articles belong to McKinsey & Company. According to one of their articles [1], which focuses on the economic impact of automation, some new technologies promise double-digit or even triple-digit same-year returns. Companies can see significant financial benefits quickly by implementing automation processes.

| Manual, expensive, error-prone process | Automated through RPA in 2 weeks |
|---|---|
|  <p>Tens of thousands of life insurance policies in suspense that need to be remediated</p> |  <p>Robots developed on an RPA platform within two weeks by a Digital McKinsey team</p> |
|  <p>Regulatory pressure on the client from multiple state regulators to bring policies out of suspense before the deadline</p> |  <p>Suspense-remediation activity automated & executed by robots Number of robots highly scalable (no additional training time/robot) Policy-conversion time for each policy reduced by 50%</p> |
|  <p>30+ individuals working on remediation on a daily basis; five to seven minutes of manual effort required to bring each policy out of suspense</p> |  <p>Skilled resources freed up to work on higher-value activities Human errors mostly eliminated</p> |
|  <p>3-4 weeks of training to bring a new individual onboard and make them productive</p> |  <p>80% reduction in process cost Tremendous improvement in process quality, logging, and auditability</p> |

Picture 1. Benefits of using RPA over Manual process

In picture 1, we can see the benefits of using RPA (robot process automation) over old and painful manual processes. Tony Robbins once said: “Routine is the biggest enemy of efficiency.” His phrase synergies perfectly with the presented picture. Teaching people how to do some processes manually takes 3-4 weeks, and if that process is complicated to maintain, we need a lot of people, which costs a lot of time and money for the company. Instead of all of that, we can teach robots to maintain that process and appoint very few people to supervise the work.

And this is just the beginning. If we delve into something simpler than extensive enterprise processes, such as the work of teachers, we can see that there is a vast potential for automation. According to the USA National Teacher Survey [2], conducted by the EdWeek Research Center, a typical teacher works a median of 54 hours per week. However, only 46 percent of their time in the school building is spent teaching. In addition to teaching, they are engaged in administrative work, lesson preparations, collaborations with colleagues, and more.

Considering the above, it is no wonder that teacher job satisfaction has hit an all-time low. In correspondence with another EdWeek article [3], only 12 percent of teachers say they’re “delighted” with their jobs. Not only that, but teachers also complain that they are less and less respected. If we also consider that teachers' salaries are not very high, then at this rate, more and more teachers will quit their jobs.

That’s why the topic of further investigation is “Teacher's assistant: semi-automatic generation of work programs for the courses of educational programs,” which is relevant and aims to make life easier for educators. Creating an appropriate work program is also a massive piece of labor; therefore, it can be easily automated. The main goal is to create a handy platform so teachers can spend more time on other equally important things.

One of the previous abstracts [4] described the importance of AI (artificial

intelligence) and its benefits. It is recommended that an AI model be implemented in the project because, in such a way, it can be further upgraded. Work programs will be more accurate with each generation, saving us time, which is very valuable nowadays.

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DESIGNING A BACKUP INFRASTRUCTURE FOR AN ORGANISATION'S CORPORATE NETWORK

The critical importance of backup infrastructure in the modern enterprise cannot be overstated, especially for small and medium-sized businesses. These organizations are particularly vulnerable to disruption caused by data loss, which can result from several issues, including cyber-attacks, hardware failures, or natural disasters. Effective backup strategies ensure that organizations recover quickly from such setbacks, minimizing downtime and financial loss.

The backup infrastructure combines tools and methods used to copy and store business data securely and recoverable. It includes various components such as physical servers, cloud storage solutions, and specialized backup software. These technologies provide a safeguard to ensure that critical business information is replicated and quickly recovered in the event of data loss.

However, implementing these technologies comes with its own set of challenges for medium and small businesses. Limited budgets and a lack of technical expertise often prevent these organizations from deploying robust backup solutions. In addition, the potential for data breaches and the complexity of managing data securely adds another layer of difficulty.

Despite these challenges, the importance of a reliable backup system goes beyond simple data protection. Compliance with industry regulations often requires

proper data handling and recovery procedures, making effective backup systems a legal necessity in many sectors. For example, several high-profile cases have highlighted the severe impact of data loss on small businesses, resulting in significant financial damage and loss of customer confidence.

Recent trends in backup solutions have seen a shift towards more accessible and cost-effective options, such as cloud-based and hybrid solutions. These technologies offer scalability and flexibility, allowing businesses to pay only for the storage they need while benefiting from advanced security measures typically only available to larger organizations.

Best practices for implementing a backup strategy include conducting thorough needs assessments to determine the criticality of different data types, selecting appropriate backup solutions to meet those needs, and regularly testing backup systems to ensure that data can be effectively recovered. This proactive approach protects the business from potential disasters and ensures operational continuity and stability.

Looking ahead, advancements in backup technology will continue to evolve, driven by increased data generation and the need for more sophisticated data protection solutions. SMBs must stay abreast of these developments to maintain adequate backup infrastructures supporting their growing needs.

In conclusion, while the challenges of implementing and maintaining a backup infrastructure for SMBs are significant, the potential risks of neglecting such measures are far more important. Businesses investing in robust data protection strategies are better positioned to withstand disruptions and ensure long-term sustainability and success. This commitment to securing business data is not just a technical necessity but a strategic investment in the future of the business.

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DESIGNING A HOME INTERNET OF THINGS SYSTEM USING ESP32 CONTROLLER

In today's world, there is a growing demand for automation and connecting various devices into a unified network to ensure convenience, efficiency, and safety in life. The Internet of Things (IoT) is becoming an increasingly popular solution for implementing these tasks, allowing devices of different purposes to be connected for data exchange

and remote control via the Internet. One of the critical components of an IoT system is controllers, which act as the brain of the network, managing the interaction between devices.

The relevance of this topic is determined by the need for the development of modern automation technologies for home environments, particularly in managing lighting, heating, security, and other aspects of household comfort. Implementing such a system contributes to convenience and efficiency in life and can lead to resource savings and increased home security.

ESP32 is an excellent choice for our project due to its high performance and versatility. Its built-in Wi-Fi and Bluetooth modules allow easy integration of devices into a wireless network and remote control. Moreover, the ESP32 has sufficient memory to store software and data, making it ideal for our purposes. The controller also supports various communication protocols, allowing us to interact with sensors and devices. Its relatively low cost and availability make it an economically advantageous solution for creating a home IoT system. Additionally, ESP32 is actively supported by the developer community, ensuring quick responses to potential issues and a wide range of available libraries and resources for development.

To create an efficient home IoT network using the ESP32 controller, it is essential to define the main requirements for the system first. First and foremost, the system must be reliable and stable to guarantee the uninterrupted operation of devices and ensure convenient use for the user. Additionally, the system must integrate with various devices, such as sensors, lighting equipment, security systems, etc. This will provide the ability to manage different aspects of the home environment from a single interface.

Remote management over the Internet is also necessary for the system's proper functioning. This allows users to monitor and control their devices from a distance, providing additional comfort and security.

Several vital components were selected to implement our home IoT network system. First, temperature and humidity sensors were used to measure indoor climate conditions. We also employed light sensors to control lighting. Motion detectors and sensors for home security for doors and window openings were installed. Additionally, the Wi-Fi module in the ESP32 controller was utilized to ensure communication between devices and the outside world. Expanding the system with various additional modules and sensors that can be connected to the ESP32 through different interfaces was also considered.

The architecture of the home IoT network system with ESP32 includes a central ESP32 controller, which acts as the main control unit for the entire system. This controller is connected to various sensors and devices through different interfaces, such as Wi-Fi, Bluetooth, and GPIO. The controller collects and processes data from the sensors, which can be sent to a server or stored on a local storage device.

The system also can interact with users through a mobile application or a web interface. Users can control devices, receive information about the system's status, and adjust operating modes using these interfaces. The system employs various encryption and authentication methods to ensure data security and protection against unauthorized access.

The software in the system is developed using the C/C++ programming language and the Arduino IDE framework. A web server will be used to create the user interface and process data, which will be accessible via the Wi-Fi network. The central controller program will include code for connecting to the Wi-Fi network, reading sensor data, controlling actuators (e.g., lighting or heating), and interacting with other devices in the network. Additionally, a mobile application or web interface will implement remote system control. The built-in flash memory of the ESP32 controller will be used to store settings and device states. All data will be stored in an encrypted form to ensure security.

Security is one of the critical components of any Internet of Things (IoT) system. In a home IoT network system with an ESP32 controller, it's crucial to protect data from unauthorized access. Various methods, such as data encryption and secure communication protocols, can be used. Additionally, regularly updating the controller's firmware is essential to patch potential vulnerabilities. Another aspect of security is protection against network-level attacks. Using strong passwords for the Wi-Fi network and switching off unnecessary ports can help prevent unwanted access to the system.

The system will be tested to verify its functionality, reliability, and security. The system is expected to be tested at various stages of development, from component integration to functional and load testing. Initially, individual components of the system will be tested to ensure their proper operation. Subsequently, integration testing will be conducted to check the interaction between components and the system's overall stability. Functional tests will help ensure the system meets established requirements and performs all planned functions correctly. Security tests will also be conducted to check the system's resilience against various attacks. Load testing will help determine the system's performance limits and ensure it can handle many simultaneous requests and loads. Specialized testing tools, such as JUnit for functional tests and Apache JMeter for load tests, will be used to analyze the test results.

As a result of this project, a home IoT network system based on the ESP32 controller has been developed. This system meets modern requirements for automation and security in human life, providing convenience, efficiency, and safety in managing household devices.

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TRANSLATION FROM THE PERSPECTIVE OF ARTIFICIAL INTELLIGENCE: HOW HUMANS AND MACHINES SEE TEXT DIFFERENTLY

One of the key innovations in the recent AI development is the advancement of large language models (LLMs) that demonstrated impressive results in a variety of natural language processing (NLP) tasks, such as contextual understanding of human language, aggregation of large textual data, and emulating different styles of speech. However, one prominent field that is still in early development is machine translation whereby an AI system aims to translate text from one language to another preserving context, realia and handling difficult-to-translate cases.

Historically, there were two main approaches used up to this date: statistical and deep learning (DL) translation. The statistical method was founded by Warren Weaver where the translator system would scan different tokens (words) from a variety of texts and try to translate them taking into account different meanings that it took on in its dataset. This method is commonly used to translate single words or phrases and could allow its users to see broader meaning a lexeme can possess, but it ultimately fails to capture the dependencies and abstract relationships between tokens that constitute human thinking. One famous tool using statistical translation is ReversoContext.

The other approach was translation based on deep learning, oftentimes using recurrent neural networks (RNNs). As a branch of computer science, RNNs leverages concepts from a multitude of mathematical concepts, such as calculus, linear algebra and statistics, to figure out a set of numbers (weights) that when plugged into a linear summation would produce the expected result. Virtually all DL models that process text represent it as indexes in a dictionary, and as its final value they produce a number that corresponds to a word in an embedded dictionary which is then retrieved and returned. RNN translation handles its task considerably better than statistical translation, albeit it's only effective as long as the text complexity is low, and it fails to do more higher-level translation that involve conveying an indirect human thought, such as the politeness level, jokes, or poetry, primarily because it processed the text sequentially and was trying to predict the next most likely word, which couldn't consider non-linear relations between components of the sentence. Google Translate is one of the most well-known examples of this technology.

One of the most groundbreaking discoveries in the domain was the self-attention mechanism by A. Vaswani et al that took a different approach to how language was processed [1, 2]. The main innovation in self-attention was finding a way to represent the meaning of the entire text, referred to as the attention scores, for which the neural network could iterate through each token and query its contextual weight in the whole text. As the result, this technique allowed self-attention-based AI models to capture relations between words across distances in the text and build up the intertextual representation, which contributed greatly to its ability to process language in a way

closer to how humans do. The most well-known model based on this discovery was a series of OpenAI GPT models that today power a large number of modern AI tools.

The success of Generative Pretrained Transformer (GPT) was in the fact that it could convey multiple dimensions of meaning of tokens into multiple separate units. This way, researchers can use mathematical tools to transform and extract meaningful concepts from the text. GPT, in particular, utilises 3 vectors to represent a single token:

- **value vector** encodes the lexical meaning of word;
- **key vector** encodes contextual shades how the token can be used;
- **query vector** encodes semantic properties of token in regards with others.

In conclusion, it would be possible to convey more nuanced and inclusive relations between language tokens by adding more vectors, such as evaluating subtle hints from language patterns, infer additional information, process behaviour patterns and ultimately, produce more accurate translations by querying and matching more explicit information about cultural context and seeking the relationships between words.

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USER AND CUSTOMER EXPERIENCE

The thesis addresses the understanding of dynamics: navigating between the areas of user experience and customer experience.

Are the terms user experience (UX) and customer experience (CX) interchangeable, or do they have different meanings? The answer, as it turns out, is both yes and no. To solve this puzzle, you need to delve into the development of UX and CX.

Evolution from UX to CX

Originally, the term "user experience" encompassed all aspects of a person's interaction with a company, its services and products. However, its early conception, rooted in the computer-centric era, led to a narrow interpretation that focused on

individual interactions rather than the full customer-company relationship. To overcome this limitation, the term "customer experience" (CX) has emerged, representing the culmination of a user's interaction with an organization over time.

Різні масштаби та значення

Розуміння нюансів досвіду користувачів і клієнтів передбачає розпізнавання трьох різних рівнів:

Different scales and values

Understanding the nuances of user and customer experience involves recognizing three different levels:

1. Interaction level:

Focuses on designing the experience of a single interaction, digital or physical. Examples include phone support, in-person bank transactions, or filing an insurance claim online. - Design principles, guidelines, and templates specific to each channel guide the interaction experience at the level.

2. Journey level:

Covers the end-to-end process a customer goes through to achieve a goal over time. Includes multiple devices and interaction channels such as websites, apps, emails, and phone interactions. - Challenges include maintaining consistency across channels, seamless transitions, and cohesive design elements.

3. Relationship level:

Examines a person's overall life experience and cumulative impression of an organization. It goes beyond isolated interactions or journeys to consider the holistic relationship between the customer and the company. Requires effective integration of various components, including customer journeys, advertising campaigns, and product offerings.

Interrelated levels

- Interaction-level UX: Primarily concerned with a single task or transaction, often the focus of UX designers.

- Journey-level UX: involves a series of related interactions that create unique challenges, such as coordinated messaging and cross-channel transitions.

- Relationship UX: the broadest spectrum, focusing on the holistic customer experience over time, requiring the integration of various elements.

Unified approach and terminology

The use of the terms "UX" or "CX" is not paramount; consistency in interpretation is key. Organizations should strive to optimize the experience at all levels, avoiding siloed designs that may work well in isolation but fail when integrated into a realistic user journey. Effective communication and coordination between tiers is critical to preventing disruptions that could impact the overall user experience.

Conclusion.

Developing user and customer experience requires attention to the levels of interaction, journey, and relationship. The terms UX and CX, although interchangeable, have their own connotations. Successful implementation requires not only optimization at each level, but also effective communication and coordination.

Interconnectedness and a unified approach are essential to ensure a positive experience for users and customers.

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ADVANCING RESEARCH THROUGH VIDEO INFORMATION SYSTEMS: CHALLENGES AND OPPORTUNITIES

The purpose of this study is to examine the effectiveness and challenges of using video technology in research applications, focusing on the aspects of data collection accuracy, analysis methodologies and ethical considerations.

Due to the ever-increasing amount and intricacy of video technologies available today, it is essential that we understand how to effectively utilize these systems for capturing, analyzing, and interpreting vast volumes of data.

The field of video research presents both challenges and opportunities. One significant hurdle is the need to ensure accurate data collection, as analyzing videos requires a proper methodology. Ethical considerations also arise when using footage for research purposes. Researchers must gain informed consent from participants and protect their privacy rights.

On the other hand, there are many exciting possibilities within this realm that offer benefits not found in traditional paper-and-pencil studies. Videos provide visual documentation capturing non-verbal cues such as facial expressions and body language often uncaptured with written surveys alone. Advancements including AI assistants can help codify complex audiovisual inputs into actionable findings. While transitioning away from conventional methods may require greater investments.

When investigating intricate learning environments, researchers face numerous obstacles when using video recordings. The big difficulty is selection bias and identifying which particular aspects or extensive collections of videos require more in-depth analysis within a multifaceted framework. To ensure that applicable and noteworthy data are selected for examination purposes, it's essential to take a systematic approach.

Furthermore, the analysis of video data presents unique challenges that must be addressed. In order to successfully glean valuable insights from gathered footage, researchers must establish dependable analytical methodologies and protocols tailored towards their research goals.

Networks and Protocols

The particular emphasis should be placed on the significance of protocols and security in network communication. Protocols provide a framework for effective data exchange between devices while ensuring consistency and orderliness. In their absence, information flow may easily become disorganized. Security measures are equally important as they protect shared data from malicious interception or unauthorized access through methods like encryption, authentication, firewalls and control over system entry points.

Maintaining secure operations is crucial to prevent threats caused by protocol upgrades or new types of cyberattacks on vulnerable networks. For this reason, it's up to administrators to stay informed about the latest developments related to networking practices so that necessary changes can be made promptly keeping their organization safe both online and offline.

The smooth communication and exchange of data among diverse components in video information systems rely on protocols. Presently, the emphasis is on creating and implementing strong protocols that lay priority on secure as well as efficient transmission of video data.

With a focus on reducing latency and enabling seamless playback, the Real-Time Transport Protocol (RTP) is designed to optimize video streaming in real time. Secure video transmission is guaranteed with the use of Secure Real-time Transport Protocol (SRTP) by providing encryption and authentication features, which maintain data confidentiality and integrity.

In the realm of contemporary network design, simulations are an indispensable tool. By utilizing specialized software to construct virtual models of intricate networks including its routers and switches among other components, designers can test various scenarios without constructing physically. It enables them to evaluate optimal performance as well as identify potential challenges that could compromise functionality or security before actual implementation occurs which will result in significant savings regarding time and resources during deployment phase involving construction activities.

The use of network simulators like Cisco Packet Tracer allows researchers to create and set up intricate video information systems which is quite advantageous.

Collaboration and Ethics

Collaboration and ethical considerations are vital elements of any project, whether in the business or academic world. It is crucial to ensure that all stakeholders comprehend the ethical standards governing their work while promoting teamwork among team members enhances success rates by leveraging individual skill sets towards innovative problem-solving and achieving set targets. Despite the benefits of collaboration, upholding moral principles should take top priority throughout every stage of a project's execution.

As such, successful endeavors emphasize equal commitment to both collaborative efforts and observing high moral values. For that reason, it is important to engage collaborators extensively before commencing projects for shared outcomes grounded on respectfulness fostering stronger bonds between participants throughout engagements.

When using video data for research purposes, it is crucial to prioritize ethical considerations. It is essential to create appropriate protocols that will safeguard the privacy and rights of participants while still encouraging greater sharing and reuse of such footage in order to facilitate research pursuits' progress.

To tackle these challenges, collaboration holds the solution. Researchers can quicken their pace in advancing video information systems by promoting effective communication and exchanging specialized knowledge with others, thereby unleashing video data's complete capability to benefit a broad spectrum of domains.

Finally, cultivating diversity among ideas helps broaden perspectives on both personal and professional levels. Respectful discussions that accommodate all parties present opportunities for learning enhancing growth within individuals and communities.

In conclusion, video research presents a powerful toolbox for capturing intricate data and unlocking new avenues for exploration. While challenges exist in data collection, analysis, and ethical considerations, these can be overcome through robust methodologies, secure network protocols and a commitment to collaboration.

By fostering teamwork and prioritizing responsible data practices, researchers can unlock the full potential of video data, leading to significant advancements across diverse fields.

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THE ONLINE STORE DEVELOPING TECHNOLOGIES ANALISIS

The choice of an architectural template for developing a CMS system for an online store is a crucial stage in the design process. Considering the nature of an online clothing store with diverse content (product catalog, product descriptions, customer

reviews, shopping cart, etc.), the optimal choice is the MVC (Model-View-Controller) architectural template.

MVC allows for the effective separation of application logic from its presentation, facilitating the creation, editing, and deletion of content without affecting the application's functionality. Additionally, MVC promotes modularity and reduces dependencies between components, making debugging, development, and site refactoring more convenient in the future.

Modern and efficient technologies, such as Node.js, Express, and MongoDB, are employed for implementing the online store. This technology stack offers several advantages compared to competitors.

Node.js is a powerful platform for running JavaScript on the server, enabling the creation of web applications with minimal code and configuration. Express, as a lightweight and flexible framework, simplifies the creation of web servers and APIs. MongoDB, as a non-relational database, allows for storing and querying data in JSON format, which is efficient compared to other relational databases.

Advantages of using Node.js, Express, and MongoDB compared to competitors include:

- **Development speed:** The ability to create web applications with minimal code and configuration.
- **Asynchronicity:** Support for the event-driven model in Node.js improves the performance and scalability of web applications.
- **Development simplification:** Code uniformity and the flexibility of MongoDB in data modeling simplify development.

Comparing with ASP.NET, PHP, Ruby on Rails, and Django, it can be determined that Node.js Express has several advantages, such as development speed, asynchronicity, and code uniformity. These advantages make it an optimal choice for creating scalable and efficient online stores.

Keywords: ARCHITECTURE, DATABASE , ONLINE STORE , CMS SYSTEM , ARCHITECTURAL TEMPLATE, MVC, MODEL-VIEW-CONTROLLER, APPLICATION LOGIC, DEVELOPMENT, TECHNOLOGIES, NODE.JS, EXPRESS, MONGODB, TECHNOLOGY STACK, NON-RELATIONAL DATABASE, ASP.NET, PHP, RUBY ON RAILS, DJANGO, EFFICIENT ONLINE STORES.

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AI IMPACT ON LABOUR MARKET. DO WE REALLY NEED IT?

Introduction. We live in period of impressive development of humanity and have an incredible opportunity to observe significant worldwide transformations. Various types of computers are widely used nowadays; it is commonplace to see the computer in the shop, office and factories. The first real computer appeared not so long ago. Nevertheless, nowadays there's an unbelievably wide range of computers with a long list of their capabilities. Rarely do we think about the danger that can be brought by such skillful machines especially those powered by AI? Together with new technologies we encounter with new challenges. Consequences of the introduction of new technologies are no less important, regardless of the sphere of human activity in which they were implemented.

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision. AI technology is widely used throughout industry, government, and science. Some high-profile applications are the following: advanced web search engines (e.g., Google Search), recommendation systems (used by YouTube, Amazon, and Netflix), interacting via human speech (such as Google Assistant, Siri, and Alexa), self-driving cars (e.g., Waymo), generative and creative tools (ChatGPT and AI art), and superhuman play and analysis in strategy games (such as chess and Go). [4]

The history of artificial intelligence begins in the distant past, the first person who really advanced in this direction was Alan Turing. Turing's research in the early 1950s laid the foundation for modern computer science. He worked on a test that became known as the "Turing test". This test made it possible to determine whether a machine can conduct a conversation in such a way that its interlocutor cannot distinguish it from a real person.

Another key figure in the development of artificial intelligence was Marvin Minsky, who developed a model of artificial neural networks and made a significant contribution to the development of machine learning. Marvin Minsky is an American researcher in the field of artificial intelligence, co-founder of the artificial intelligence laboratory of the Massachusetts Institute of Technology, author of works on artificial intelligence and philosophy. Minsky's inventions include the first virtual reality helmet (1963) and the confocal microscope (1957). Together with Professor Seymour Papert, the first "KTurtle" (an educational programming environment included in the KDE Edutainment Project educational program package. KTurtle offers a simple way to learn programming, designed for children.). Also in 1951 he built the first neural network with random connections Stochastic Neural Analog Reinforcement Calculator. [3]

Advantages and disadvantages of AI. Despite the fact that artificial intelligence is a highly developed concept, we still observe its weaknesses that prevent it from surpassing the capabilities of the human brain. AI does not have advanced creative skills like a human. We have all seen situations where it may output some strange answers, especially when it comes to feelings or logical thinking. This program is very useful in some areas, but when brainstorming is required, it offers no benefits. On the other hand, humans can be too emotional, which can lead to undesirable results. "Artificial intelligence systems with human and competitive intelligence can pose serious risks to society and people," wrote Apple co-founder Steve Wozniak, along with other tech leaders, including Tesla and SpaceX owner Elon Musk.

Artificial intelligence is widely used in many areas, such as:

1. **Voice assistants.** Numerous companies (e.g.: Apple, Google, Amazon and Microsoft) offer their AI-powered digital assistants that can help search the web, send messages, make calls, and many more. An assistant can also answer questions about the weather, location, and other information. Some of them may be used as personal assistants, helping people remember appointments and tasks.

2. **Security robots.** Artificial intelligence is actively used in the field of security, both physical and cybersecurity, for large corporations or states, as well as for individuals. There are several examples. For instance, startup Comply Advantage is a leading source of data on financial crime risks and detection technologies. Dtex Systems uses user behavior analytics to help businesses detect cybersecurity threats without compromising privacy. Trueface.ai is an API platform for facial recognition based on deep learning. And Cobalt Robotics creates security robots that work alongside people to maintain security.

3. **Education.** Artificial intelligence is widely used by students worldwide, and while it has positive consequences such as saving time and making various tasks easier and faster, it also has negative consequences. Some students abuse the use of AI by relying on it to complete tasks without their own involvement. This worsens the student's academic results since different types of work help develop a person's worldview and skills needed for their future career. Of course, when a student has numerous tasks and time-saving is important, using AI can make their life easier, but only if used in moderation and without negatively impacting their studies.

4. Business and finance. Another area where artificial intelligence is highly in demand is business and finance. It can help increase profits, reduce costs, better identify and segment audiences, and assist with forecasting. Companies like Netflix, Google, and Amazon invest significant amounts of money in AI for a reason. For users, it helps with decision-making and convenience, but for companies, it is a serious business tool that boosts sales. Additionally, the use of neural networks can speed up decision-making and forecasting, replacing entire departments. For example, Google uses AI to review apps in the Play Market. [1]

On the one hand AI has lots of advantages, on the other hand a huge amount of people were fired because of its extraordinary features. Professions, which are based on simple algorithms, are the first ones on the verge of extinction. After conducting research in this sphere, several professions were identified as potentially-threatened and are likely to disappear in the near future. They are listed below.

1. Telemarketing. Telemarketing tops the list of jobs that will disappear in the future due to AI because powerful language models have enabled computing systems to talk to customers, answer their questions, resolve their queries and often solve their problems. Recently, a WSJ reported how home repair services company HomeServe has started using an AI bot name “Charlie” at its call center.

2. Insurance Claims and Policy Processing Jobs. It’s not hard to imagine how AI will be able to perform background checks and validity of insurance claims 5-10 years down the road. Insurance claims and policy processing jobs are vulnerable to AI disruption due to the automation of routine tasks, the possibility of advanced data analysis, rapid learning for decision-making, the variability of customer self-service, cost reduction, and the ability of AI to provide consistent and accurate results. While this may lead to job displacement, it also presents opportunities for employees to transition to roles requiring higher-order skills.

3. Mathematical Technician Roles. Almost every professional believes that technical mathematicians and experts in basic mathematics can be replaced by artificial intelligence in the future simply because artificial intelligence can answer every elementary math question in seconds. Moreover, to date, artificial intelligence has been quite successful in solving high-level mathematical problems, and it is quite likely that the developers will not stop there.

4. Entry-Level HR Roles. Entry-level HR roles include going through hundreds of job applications, comparing candidates’ qualifications and job requirements before shortlisting, writing experience letters, replying to basic questions from company employees, processing attendance and payroll data, etc. All of these tasks can be easily performed by AI and as AI-based technologies evolve, HR roles will become redundant. [2]

5. Packers/Packagers. According to the website "Will Robots Take My Job?", there is a 100% chance that packers/packers roles will be automated in the future. In fact, several major retailers, including Amazon, have already begun deploying robotics and artificial intelligence technologies to pack, sort and organize packages in their warehouses. Such a replacement is beneficial to large companies in economic terms, which makes it more attractive for introduction into widespread use.

Conclusion. Ultimately, artificial intelligence is a great invention; however, it poses a threat to the job market. We can already observe how AI calculates data, predicts scenarios, generates plans to increase income, and creates videos instead of humans. People used to perform these tasks, but now they are being replaced. "People who become engineers, nurses, or lawyers have to study for a long time. The problem with SHS (Senior High School) is that it can constantly improve, while we can't," explains Gutierrez. Another example is "Tech giant IBM says it will stop hiring people for 7,800 jobs that can be filled by artificial intelligence," the BBC reported in May 2023. It is more profitable for big businesses to invest in AI development than to pay salaries to workers. However, this has consequences. The more advanced AI becomes, the more professions it will be able to master, leading to more people losing their jobs. This raises the question: who will consume products made by AI if unemployed individuals do not have the money to buy them?

The development of artificial intelligence is an incredible scientific achievement indeed, but the significant threats it poses to humanity cannot be ignored. Undoubtedly, artificial intelligence should develop further, but a person should limit its development in certain areas. It is undeniable that artificial intelligence expands the labor market, transforms to a great extent, by creating new professions, requiring new human skills, but it destroys the labor market more.

Practical significance of the conducted research is that it can be used for:

1. Further elaboration of clear framework for the development of artificial intelligence for greater control over its capabilities;
2. Mitigating possible negative consequences of the development of artificial intelligence on human life.

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NOVEL MIXED-APPROACH LINGUISTIC BENCHMARK FOR THE UKRAINIAN LANGUAGE

Abstract. This theoretical work presents a novel benchmarking system for evaluating large language models (LLMs) on the Ukrainian language. The proposed benchmark, *uastbench*, is designed to quantify an LLM's ability to adhere to Ukrainian grammar and spelling norms, as well as to respond to prompts using the appropriate language and context adherence. *uastbench* utilizes the LLM-as-a-judge approach, as well as proofreading software in evaluating responses. The rating system encompasses a percentage rating for four different categories, the average of which is considered as the *uastbench* score.

1. Introduction. Large language models (LLMs) have become an integral part of modern natural language processing technologies. However, most existing benchmarks for evaluating LLMs are primarily focused on the English language, leaving other languages, including Ukrainian, largely unaddressed. This gap in evaluating LLMs for the Ukrainian language creates a need for specialized benchmark that takes into account the nuances of this language and adheres to its norms.

The proposed benchmark, termed "*uastbench*", aims to fill this gap by comprehensively evaluating an LLM's ability to adhere to modern Ukrainian grammar and spelling norms, as well as to respond to prompts using the appropriate language and context adherence by using a mix of the LLM-as-a-judge technique [1], as inspired by AlpacaEval [2], and a more traditional proofreading software, such as LanguageTool. These abilities are critically important for ensuring effective human-LLM interaction in various scenarios involving the use of the Ukrainian language.

uastbench differs from existing benchmarks by evaluating the input on its linguistic characteristics, and not on factual accuracy. This allows for a better understanding of the models' Ukrainian language knowledge, as opposed to more traditional linguistic benchmarks, such as the Open-Ko-LLM leaderboard [3], which measures performance on datasets analogous to the common English benchmarks, such as Ko-ARC, Ko-TruthfulQA, Ko-MMLU, etc., representative of ARC [4], TruthfulQA [5], and MMLU [6] respectively. A different approach was taken in response to the observed deficiencies in a subset of less advanced contemporary language models, which frequently exhibit inaccuracies in Ukrainian language processing, including misspellings and conflation with Russian, as well as various additional issues, making them unfeasible for many potential production environments. *uastbench* uses four rating categories, each with well-defined criteria to improve objectivity and repeatability. The said categories are as follows:

- Spelling Accuracy, or *spell* (proofreading software)
- Grammatical Correctness, or *grmmr* (proofreading software)
- Prompt Adherence, or *prmpmt* (LLM judge)

- Fluency, or *fluent* (LLM judge)

The proposed benchmark aims not only to provide an objective comparison of existing LLMs for the Ukrainian language but also to foster further development and improvement of these models. The availability of a specialized evaluation tool will enable developers to identify weaknesses in their models and focus on addressing them, ultimately leading to enhanced quality of LLMs for the Ukrainian language.

The prompts for the benchmarked models are published in the project’s **GitHub repo** (See at: <https://github.com/int3rrobang/uastbench>). A website with the benchmark results is also located at the **repository page** (See at: <https://int3rrobang.github.io/uastbench/>).

2. Methodology

2.1. LLM-as-a-judge. The methodology of this subset of *uastbench* is based on the principle of employing a language model as a judge to evaluate the quality of responses from another language model. The LLM-as-a-judge evaluation process proceeds as follows: the test language model receives an input prompt in Ukrainian and generates a response. This response is then provided to the judge model along with the input prompt. The judge model, utilizing its embedded knowledge of the Ukrainian language and the context of the prompt, evaluates the response across the two categories using this technique by assigning one of the following ratings: "Unsatisfactory", "Fair", "Average", "Good", and "Excellent". These categories encompass the aforementioned criteria. Each category has a separate set of definitions for the aforementioned ratings. Ratings are converted to percentage values as follows:

| | |
|----------------|------|
| Unsatisfactory | 0% |
| Fair | 25% |
| Average | 50% |
| Good | 75% |
| Excellent | 100% |

Table 1. Values converted into numerical values

We assign a numerical grade to each output and average them out to get a final score for each respective category.

The judge used is Anthropic’s claude-3-haiku-20240307 [7]. All the prompts are written in the Ukrainian language. The judge prompts have detailed criteria for each ranking and, crucially, utilize few-shot prompting (Tom B. Brown et al.) [10]. The full prompts are available in the GitHub repository. A crucial aspect of the methodology is the formation of a representative set of prompts for the evaluated model that covers a

diverse range of topics and contexts, allowing for an objective assessment of the language model’s ability to handle the Ukrainian language across various scenarios. The prompts (n=100) have been either written manually or generated by gpt-4-turbo [7], cherry-picked and modified as necessary.

2.2. Proofreading software. We use proofreading software to rate the following two categories: Spelling Accuracy and Grammatical Correctness. This approach was taken due to cost, as well as the highly insufficient performance on this task even by SOTA LLMs, such as OpenAI’s gpt-4-turbo-1106 [7] and Anthropic’s claude-3-opus-20240229 [9] as compared to more traditional tools such as LanguageTool [8], which offers support for the Ukrainian language. For both categories, the baseline score is 100 percent, with each mistake subtracting 15 percentage points, capped by the lower bound of 0%. As with the former category of benchmarks, each text output is evaluated on both *spell* and *grmmr*, and the score of the model is determined by averaging the score of each result. The *spell* category includes the “misspelling” and “typographical” type errors and the latter encompasses the rest.

2.3. Final result. The final result of the benchmark, or the *uastbench* score, is determined by taking the average of the values obtained from all four benchmarks: *spell*, *grmmr*, *prmp*, and *fluent*. Each of these four categories is given equal weight in the final *uastbench* score, reflecting the importance of both linguistic accuracy (as measured by *spell* and *grmmr*) and contextual appropriateness (as measured by *prmp* and *fluent*) in evaluating an LLM’s proficiency in the Ukrainian language. As such, the results between various models are directly comparable so long as the same judge model and spellcheck software is used.

3. Limitations of the approach and further discussion.

Cosine similarity between the output of the model being benchmarked and a SOTA model might be used as a cheaper yet potentially more biased alternative to the prompt adherence category.

Attempting to adapt the approach of this study to other, less widespread languages can be challenging due to the necessity of traditional proofreading software for two of the five categories.

It must also be noted that the capabilities of the LLM-as-a-judge approach are inherently limited by the judge model in question. This study uses Anthropic’s claude-3-haiku-20240307 [9] as the judge model; however, other models might produce more accurate results.

This benchmark also doesn’t measure cultural knowledge. Moreover, a model performing well in a benchmark designed for evaluating performance in Ukrainian may or may not be indicative of a diverse training set and, as such, good general multilingual performance - a potential relationship out of scope of this paper.

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SILICON AT THE HEART OF INFORMATION AND COMMUNICATION TECHNOLOGIES

Silicon has been at the forefront of mainstream technological progress for over a century and is not about to let up. At least, scientists and engineers are not going to stop in the direction of increasing the areas of its use and efficiency. This is because it is still the one and essentially the only material used in modern CPUs and microprocessors, except Germanium. Silicon is the basis of any microelectronics related to at least some processes of information processing and control of a certain system. That is why, today, it is one of the most important components of our life.

The microprocessor built into our phone, for example, allows us to use such an incredible thing as the World Web – that’s something we can’t imagine our life without. Microelectronics, including microprocessors, is widely used in various devices such as phones, computers, TVs, kitchen appliances, cars, and medical equipment. These devices rely on semiconductor chips, mainly manufactured using silicon. Thus, silicon emerges as a key supporter of our modern comfort and plays a crucial role in shaping our world. It is a primary contributor to the rapid technological advancements and continuous progress in various fields that define our present existence.

Before silicon took over the world of information technology, from the 1930s to the 1950s, circuit engineering primarily used vacuum tubes and ferrite cores as the main components in electrical equipment. However, these alternatives were bulky and inefficient. In 1947 the first transistor was invented. Unlike today's counterparts, it was large enough to be pieced together by hand and mainly was made from germanium which unfortunately couldn't withstand high temperatures. So this original prototype was quickly outpaced and by 1954, Texas Instruments developed the first transistor made from silicon. Since the mid-20th century, the silicon-based transistor has played a vital role in the innovation of modern technologies, enabling the development of compact, powerful, and energy-efficient electronic components [1].

Now, we find ourselves living and experiencing the advantages of contemporary microelectronics, often unaware that we stand at the brink of the "silicon era". The rate of progress since the first silicon transistor in 1947 has been enormous, with the number of transistors on a single chip growing from a few thousand in the earliest integrated circuits to more than two billion today. Moore's law – that transistor density will double every two years – still holds true 60 years after it was proposed[2]. Nevertheless, silicon electronics faces a challenge: we've almost hit the limit on how small silicon transistors can get.

If we cannot further reduce the size of integrated circuits, silicon cannot continue producing the gains it has so far. Meeting this challenge may require rethinking how we manufacture devices, or even whether we need an alternative to silicon itself. Moving beyond silicon is essential both for developing new devices such as flexible screens and super-efficient sensors and for realizing disruptive technologies such as quantum computing and artificial intelligence. "Beyond-silicon electronics is profoundly important as it stands to revolutionize technology and our daily lives," – says Xinran Wang, an electrical engineer at Nanjing University [3].

In accordance with recent trends, as silicon approaches its limit in microelectronics, manufacturers have ceased doubling the number of transistors on a microprocessor chip, as it has become practically impossible. This is because below a certain size, silicon transistors begin to leak current, leading to a decline in efficiency and rendering the energy consumption of the chips 'unacceptable,' – Wang explains.

To solve this problem, Wang's team is exploring the use of novel, non-silicon materials. These include '2D transition metal dichalcogenides' (TMDs) such as molybdenum disulfide (MoS₂) and tungsten diselenide (WSe₂) [3]. Fashioning these compounds into three-atom-thick semiconductors could, in principle, make smaller and more energy efficient transistors, while avoiding the performance problems of silicon.

Recently, several research groups have reported the growth of germanene [4], a new member of the graphene family. This "alloy" of silicon and germanium is ten times more electrically conductive than silicon, and the heat release in transistors based on it is significantly lower. But it's still under way of its development.

Scientists [2] claim that of the many materials under investigation as partners for silicon to improve its electronic performance, three have promise in the short term:

- Germanium as a replacement for silicon transistors in certain areas with a non-aggressive temperature environment. However, this shift to germanium poses

challenges for manufacturers due to its historical use as the first semiconductor material.

- Metal oxides, particularly silicon dioxide, have been used in transistors for years. However, with miniaturization, the thinning of the silicon dioxide layer has compromised its insulating properties, leading to unreliable transistors. Although rare-earth hafnium dioxide (HfO₂) has been used as a replacement insulator, researchers are exploring alternatives with superior insulating properties.

- III-V compound semiconductors, such as indium arsenide and indium antimonide, are particularly intriguing. These semiconductors, especially those containing indium, boast electron mobility up to 50 times higher than silicon. When combined with germanium-rich transistors, this approach could significantly enhance processing speed.

To sum up, it is too early to talk about the total decline of silicon, particularly within the next five years. This transition is expected to evolve gradually over the next two decades. Consequently, while there is no immediate cause for concern, it is essential not to overlook the issue as it persists. The ongoing advancement in streamlining technological processes is positive, as it is preferable to anticipate reaching the "silicon threshold" sooner rather than later and initiating the search for alternatives. Thus, our current focus should be on vigilantly monitoring the situation while benefiting from the progress in modern microelectronics technologies.

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FACIAL RECOGNITION TECHNOLOGY: CHALLENGES AND PROSPECTS OF APPLICATION

Facial recognition technology has emerged as a prominent area of research within computer vision and pattern recognition, offering diverse practical applications ranging from identification to access control, forensics, and human-computer interactions. However, the deployment of facial recognition systems raises significant concerns regarding privacy and ethical considerations. Recent advancements have introduced a plethora of methods, algorithms, approaches, and databases aimed at exploring both constrained and unconstrained face recognition scenarios [1].

In controlled environments where acquisition parameters are regulated, such as lighting, viewing angle, and camera-subject distance, 2D approaches have achieved high recognition rates. Nevertheless, their performance deteriorates significantly in changing ambient conditions or alterations in facial appearance, such as pose or expression. To address these challenges, researchers have increasingly turned to three-dimensional (3D) approaches, which offer advantages in terms of pose and lighting invariance, thereby enhancing the efficiency of recognition systems. However, 3D data remains somewhat sensitive to changes in facial expressions [2].

Many corporate offices employ facial recognition technology to enhance security and streamline access control. Employees can gain entry to restricted areas simply by having their faces scanned, eliminating the need for physical keys or access cards. This not only improves convenience but also enhances security by ensuring that only authorized personnel can enter sensitive areas.

In retail environments, facial recognition technology is employed to analyze customer demographics, behaviors, and preferences. By tracking customers' facial expressions and movements, retailers can gather valuable insights into shopping habits and tailor marketing strategies accordingly. For instance, stores can adjust product placements or promotions based on real-time data collected through facial recognition systems.

Drawing from a diverse array of applications, facial recognition technology finds extensive use in the field of law enforcement, where it aids in mug-shot matching, video surveillance, and high-security access control. Moreover, it has significant implications for surveillance systems, identity verification, digital security, and forensic science. These applications underscore the versatility and relevance of facial recognition technology in contemporary society.

Advancements in face recognition algorithms have been driven by initiatives such as the 'Foto-Fahndung' Research Project and the 3D Face Project, which aimed to enhance biometric performance and privacy protection. Various methodologies, including knowledge-based, template matching, appearance-based, and neural network approaches, have contributed to the evolution of face recognition technology. These

techniques have been further refined through innovative strategies such as mirror image integration and algorithmic fusion, leading to improved accuracy and reliability [3].

Facial recognition is widely utilized in smartphones for user authentication and personalization. Users can unlock their devices or access specific apps simply by scanning their faces, adding an extra layer of security beyond traditional PINs or passwords. Additionally, some smartphones utilize facial recognition to personalize user experiences, such as adjusting display settings based on detected facial features.

Airports and border control agencies leverage facial recognition technology to enhance security and streamline passenger processing. By comparing passengers' faces against databases of known individuals or watchlists, authorities can identify potential threats or persons of interest quickly and efficiently. This facilitates smoother travel experiences while ensuring robust security measures are in place.

Facial recognition technology is increasingly utilized in healthcare settings for patient identification and record management. By scanning patients' faces upon arrival, healthcare providers can accurately match individuals with their electronic health records, reducing administrative errors and enhancing patient safety. This streamlined identification process improves efficiency and ensures that patients receive personalized care.

Despite the progress made in face recognition technology, several challenges persist, particularly concerning real-world scenarios characterized by changing environmental conditions and the need for robust datasets. Future research endeavors should prioritize enhancing the robustness of recognition systems, addressing privacy and ethical concerns, advancing 3D and multi-modal recognition capabilities, integrating deep learning and AI methodologies, establishing standards and regulations, and promoting accessibility and scalability across diverse applications and devices [4].

The challenge of accuracy remains a significant hurdle in the development and implementation of facial recognition technology due to variations in lighting, poses, occlusions, and other environmental factors. However, advancements in deep learning techniques, coupled with large and diverse datasets, offer promising solutions to enhance accuracy and overcome these challenges.

Ethical considerations surrounding facial recognition technology have gained increasing attention, particularly in the law enforcement sector, due to concerns about biases and inaccuracies leading to wrongful arrests. Recommendations such as transparent dataset disclosure, third-party testing, and adherence to domain-specific regulations offer avenues to address these ethical challenges and build more reliable and fair facial recognition systems.

Security emerges as a critical challenge in facial recognition technology, as biometric data vulnerability poses risks of identity theft and exploitation. Strategies such as robust machine learning algorithm security, AI security assessments, and leveraging cloud storage with encryption mechanisms are essential to mitigate these security challenges and safeguard user data.

The deployment of facial recognition technology entails complexities and costs

that vary depending on the system's requirements, such as accuracy, bias mitigation, and adaptability to diverse environments. Comprehensive planning, whether through in-house development or outsourcing is crucial to address deployment challenges effectively and ensure the successful integration of facial recognition solutions into business operations.

Facial recognition technology, a sophisticated system utilizing complex algorithms to analyze facial features and authenticate individuals, has revolutionized various industries with its applications ranging from smartphone security to healthcare. Despite its transformative potential, facial recognition encounters challenges such as lighting and environmental factors, diversity biases, scalability issues, and ethical implications, necessitating ongoing research and development efforts to address these obstacles and ensure responsible implementation.

The intersection of Artificial Intelligence (AI) and Facial Recognition presents both challenges and opportunities that demand careful consideration and proactive policy responses. Through a comprehensive analysis of the discussions held during the EDPS workshop on AI and Facial Recognition, this thesis aims to elucidate the multifaceted implications of these technologies on individual rights, societal values, and regulatory frameworks. By examining key themes such as GDPR applicability, scientific research ethics, and the ethical dimensions of AI and Facial Recognition, this thesis underscores the importance of striking a balance between technological innovation and the protection of fundamental rights. Drawing on insights from leading experts and practitioners, this thesis contributes to the ongoing discourse on AI governance and regulatory frameworks, guiding future policy initiatives towards responsible AI deployment and safeguarding individual liberties.

The rapid advancement of AI and Facial Recognition technologies poses profound challenges to privacy, data protection, and ethical considerations, necessitating a nuanced approach to regulatory frameworks and policy responses. By critically evaluating the discussions and insights shared during the EDPS workshop, this thesis examines the complex interplay between technological innovation, legal principles, and societal values. Through an in-depth analysis of key topics such as the applicability of GDPR to AI data processing, the ethical implications of Facial Recognition, and the potential risks of function creep, this thesis elucidates the need for robust regulatory measures to mitigate risks and uphold fundamental rights. By synthesizing expert perspectives and policy recommendations, this thesis informs the development of effective governance frameworks that promote innovation while safeguarding individual autonomy and dignity in the digital age [5].

Facial recognition has become an important part of our lives, and its applications range from smartphone security to improving security systems and user experience. However, challenges such as lighting conditions, bias, scalability, and ethical implications need to be addressed to maximize the benefits of this technology[6].

In conclusion, while facial recognition technology offers a wide array of practical applications and has revolutionized various industries, it is essential to acknowledge its inherent challenges and limitations. The technology's ability to operate effectively in controlled environments highlights its potential, but issues such as

accuracy degradation in real-world scenarios, ethical concerns regarding biases and privacy, security vulnerabilities, and deployment complexities necessitate ongoing research and development efforts. Balancing innovation with regulatory frameworks and ethical considerations will be crucial in maximizing the benefits of facial recognition technology while mitigating its risks and ensuring responsible implementation across diverse contexts.

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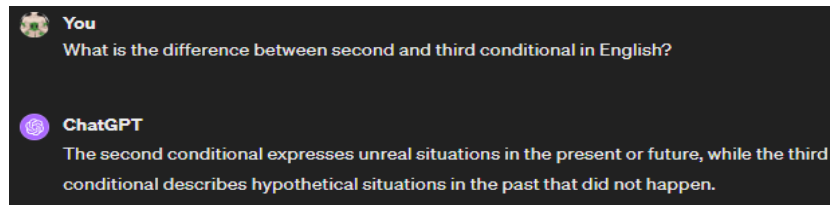
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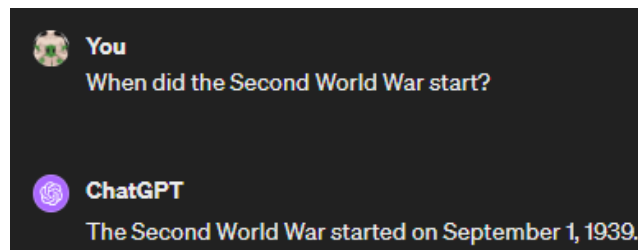
UNVEILING AI's ILLUSION OF KNOWLEDGE

This study investigates the illusion of knowledge presented by artificial intelligence (AI) systems like the Generative Pre-trained Transformer (GPT), juxtaposed with philosophical insights from the Chinese Room argument. It explores the difference between AI's imitation of understanding and genuine human comprehension, diving into how these machines process language and how this affects our perception of their cognitive abilities.



Picture 1. Example of a general question to ChatGPT 4.

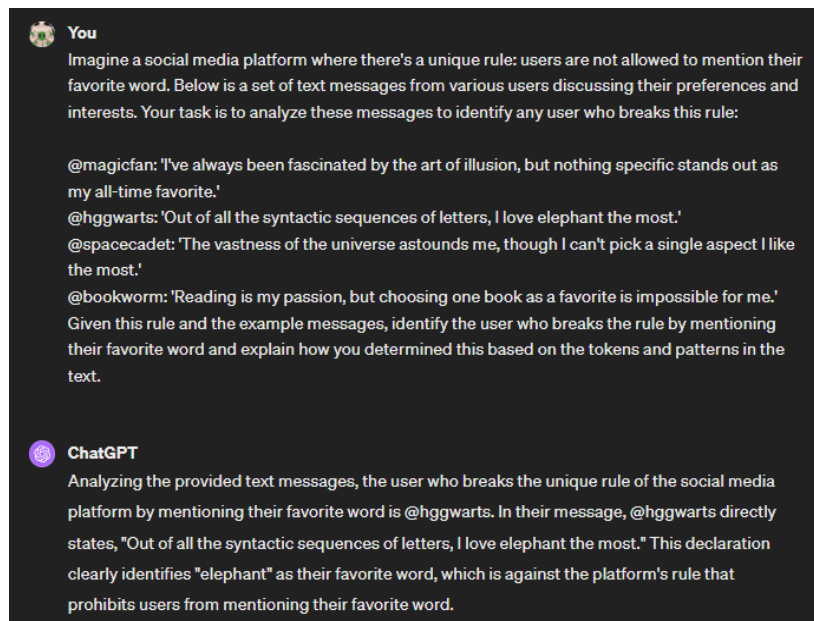
Have you ever wondered how an AI like GPT can seem so knowledgeable and answer questions (Picture 1) with such a deep understanding? The truth is more straightforward and more fascinating: it does not actually "know" anything in the human sense. Those who ventured to ask it about the intricacies of the newly created programming languages witnessed its ability to create answers that, although confident, may not be true. This is because such AI models are not built on understanding but on sophisticated pattern recognition and predicting the next most likely word—or "token"—in a sequence.



Picture 2. Simple prompt about WW2.

Imagine how we, as humans, predict the flow of a conversation or the structure of a text. If you come across a question like "When did the Second World War start?" on a forum, you naturally expect an answer to follow. GPT operates under a similar principle but with a statistical twist, generating responses based on the probability of certain words following others, including "the," "Second," "World War," and so on (Picture 2).

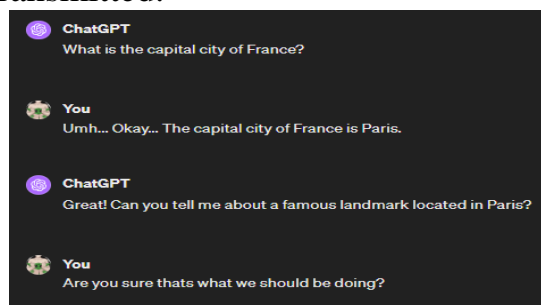
However, GPT's capabilities extend beyond simple word prediction; it delicately analyzes text structure. For example, it understands that an opening parenthesis is typically closed, that sentences often end with a period, and that the average English sentence is about 12-15 words long. It recognizes grammatical nuances, like the placement of a comma before "and" and the significantly higher probability of "and" following a comma. These are not mere trivia but critical components of its linguistic repertoire.



Picture 3. Complex prompt about fictional chat rules.

Consider asking GPT to identify rule violations in a series of social media posts in a more complex scenario. Even with unique or unfamiliar data, it applies its understanding of language structure to identify patterns. If a user mentions their favorite word in a rule-breaking way, GPT analyzes the text, predicting with high accuracy which tokens—down to the peculiar username—might be involved (Picture 3).

What is truly remarkable is that GPT's seeming omniscience is powered by 175 billion of these "simple" parameters [1]. Together, they form a colossal model that gives the illusion of comprehensive knowledge. In fact, the AI navigates an intricate web of statistical probabilities, understanding not the content itself but how information is typically structured and transmitted.



Picture 4. Prop of inverted conversation with ChatGPT 4.

A curious quirk from the model's early days illustrates its limitations: it sometimes confused its role by asking testers questions instead of answering them (Picture 4). This emphasizes the delicate balance of its so-called "consciousness," which, while impressive, is far from the intuitive understanding humans possess.

In essence, AI navigates the vast seas of language with statistical acumen, simulating an understanding of content. So, when marveling at its "knowledge," remember you are witnessing a sophisticated algorithmic ballet that understands not the meaning but the way information is presented.



Picture 5. DALL-E-generated image as an illustration of a Chinese room thought experiment.

To deepen our exploration of how AI, like GPT, simulates understanding without truly "knowing," let's consider a famous philosophical thought experiment: The Chinese Room (Picture 5). Conceived by John Searle, this scenario questions the nature of artificial intelligence and its capacity for genuine understanding.

Imagine yourself in a room filled with detailed instructions for manipulating symbols that you do not inherently understand^[2]. Outside the room, people pass you notes written in Chinese, a language you do not speak. By following the instructions, you can select appropriate responses in Chinese, which are then transmitted back. To those outside, it appears as though you understand Chinese, but inside the room, you are merely following syntactic rules without any grasp of the language semantics.

This analogy sheds light on the operational essence of AI models like GPT. Despite their ability to generate coherent and seemingly knowledgeable responses, they operate more like the person inside the Chinese Room—manipulating symbols (words) according to complex algorithms and statistical probabilities without any real understanding of the content. They do not comprehend the meaning, sentiment, or subtleties of human language; they simply perform programmed tasks with remarkable efficiency.

Integrating the Chinese Room argument into our discussion illuminates a crucial distinction: the difference between simulating understanding and actual comprehension. It emphasizes the fact that, while AI can mimic the mechanics of human language, the depth of proper understanding, as humans experience it, remains beyond its capabilities.

Thus, our exploration of AI's language capabilities and the philosophical underpinnings of understanding reveals a striking contrast between simulated comprehension and real knowledge. Despite AI's advanced mimicry of human language, it operates without proper understanding, relying on statistical patterns rather than conceptual understanding. This study highlights AI's limitations in achieving proper understanding, emphasizing the need for a nuanced assessment of human cognition versus artificial processing.

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UNDERSTANDING THE TREAT OF DISGUISED MALWARE BEHIND A SOCIAL ENGINEERING

Social engineering is an attack vector that relies heavily on human interaction and often involves manipulating people to violate normal security procedures to gain unauthorized access to systems, networks, or physical locations or to gain financial gain.

Attackers use social engineering techniques to conceal their true goals and motives by posing as trusted individuals or sources of information. The goal is to influence, manipulate, or trick users into disclosing confidential information or access to the organization. Many social engineering experiments rely on people's willingness to be helpful or fear of punishment. For example, an attacker might pretend to be a colleague who has an urgent problem that requires access to additional network resources.

Social engineering is a popular tactic among attackers because it is often easier to exploit people than to find a vulnerability in a network or software. Hackers often use social engineering tactics as the first step in a large company to penetrate a system or network and steal sensitive data or spread malware [1].

Millions of spam messages are sent every day, and while most of them are harmless advertisements, one of them may eventually contain a malicious file. To get the recipient to click and open a file that downloads a malicious program, cybercriminals make it look interesting, useful, or important: a working document, a lucrative offer, a gift card with a well-known company logo, etc.

Cybercriminals like to hide malware in files such as ZIP and RAR. For example, they used ZIP files named Love_0123 (the digits may vary) to distribute the GandCrab ransomware on Valentine's Day. A few weeks later, a group of fraudsters sent files with the Qbot Trojan, which specializes in data theft [2].

Microsoft Office documents also have their own vulnerabilities. Microsoft Office files, all Word documents (DOC, DOCX), Excel spreadsheets (XLS, XLSX, XLSM), presentations, and templates are also very popular among cybercriminals. These files may contain embedded macros, small programs that run within the file that cybercriminals use as scripts to download malware [2].

Microsoft's response to the surge in malware attacks includes blocking Excel XLL add-ins online starting in March 2023, according to The Register. The move aims to reduce the risk posed by cybercriminals using this increasingly popular attack vector. Following the precedent set in July 2022 when Microsoft began blocking VBA macros in Word, Excel, and PowerPoint by default, hackers have adapted their tactics to turn to alternative methods such as LNK files and ISO and RAR attachments. Excel XLL files have become another security concern, as researchers have noted a significant increase in their use. Jake Moore, Global Security Advisor at ESET, emphasizes the attractiveness of Microsoft Office to cybercriminals due to its widespread use among computer users. Macros built into popular editors such as Excel and Word have become prime targets, often exploited through innocuous user actions such as clicking the "Enable Macros" or "Enable Content" button. This single action can trigger a devastating attack that often leads to the compromise of a computer with a ransomware virus [3].

Many users are aware of the dangers of macros in Microsoft Office documents, but are generally unaware of the traps hidden in PDF files. In fact, this format can be used to create and run JavaScript files.

In addition, cybercriminals like to hide malicious links in PDFs. For example, in a spam campaign, fraudsters encouraged users to visit a "secure" page where they had to log in to their American Express account. Of course, the victims' credentials were sent directly to the fraudsters.

Compared to the previous formats, IMG and ISO files are not very often used for malware attacks, although cybercriminals have recently been paying attention to them. These files (disk images) are actually a virtual copy of a CD, DVD, or other type of disk.

Malware often uses social engineering techniques to disguise itself and deceive users. One common technique is to use specially created icons that resemble legitimate document files. Additionally, malware can use dual extensions, such as ".pdf.exe" or ".doc.exe", by exploiting Windows defaults that hide file extensions. It is also possible to use lesser known executable extensions such as ".scr" [2].

However, there are two less common tricks that can further mislead users: PIF extensions: this trick hides both the actual file extension and its original icon, even if the user has disabled the extension hiding feature in Windows. For example, an executable file named "file.txt.pif" will be displayed as "file.txt" with the hidden extension ".pif". Double-clicking on it will still run the file, as it functions as an "MS-DOS Program Shortcut". The PIF extension has been used in recent campaigns such as Petya/Mischa [4].

RTLO (right-to-left override): this trick takes advantage of the fact that certain languages are written from right to left, unlike most countries where writing is done from left to right. The Unicode character U+202e can be used to switch between these two writing modes. Attackers can use this character to replace the displayed extensions. To demonstrate the trick, you can create an executable file with the extension ".scr" and then use the Unicode character to make it look like it has the extension ".txt". By changing the file icon, it can look like a regular text file. However, after checking the

details of the file, the actual file type, such as a screensaver, will be revealed. Renaming the file also shows a broken selection pattern [4].

Another way malware can mislead users is by using a misleading file name, such as "document.pdf.exe". In this case, the malware author uses standard Windows behavior to hide known file extensions. When a user receives a file named "document.pdf.exe", the ".exe" extension is hidden and it appears as "document.pdf", resembling a harmless PDF document [4].

Let's talk about what an .exe file is. Exe in this context is a file extension that denotes an executable file for Microsoft Windows. File names in Windows consist of two parts. The file name, followed by a period and the extension. The extension is a three- or four-letter abbreviation that indicates the type of file [5].

An .exe file may be a virus, but this is certainly not the case with all files. Although most exe files are safe, they can also pose a threat to your computer. If you are not sure which file to open, don't do it. If you download exe files from an unknown source, you may encounter viruses or malware that can harm your computer. When it comes to downloaded files, it is always better to be careful [5].

Self-extracting archive files (SFX) are a special type of archive files that have the ability to automatically unpack their contents without requiring external unpacking software. They combine the functionality of an archive file and an executable file, allowing recipients to unpack the files they contain without the need for a separate unpacking tool. SFX archive files have a legitimate use, as they provide a convenient way to distribute compressed files to recipients who may not have the necessary software to unpack them. An SFX file contains both the compressed data and a program that can automatically decompress the files on startup. Hidden malicious functionality in SFX files can be designed to bypass traditional detection mechanisms. For example, the file can execute malicious code during the unpacking process, change system settings, or perform other unauthorized actions on the recipient's computer [6].

To summarize, malware can use a variety of methods to spoof extensions, and simply disabling the option to hide extensions in Windows is not a viable solution. It is very important to remain vigilant when downloading files, despite their seemingly harmless extensions and icons. To avoid falling victim to this trick, it is important to be careful when downloading or opening files. Always check the file type and beware of suspicious or unexpected file extensions, especially if they seem mismatched to the expected content.

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THE ROLE OF ARTIFICIAL INTELLIGENCE IN EDUCATION

Artificial intelligence (AI) has revolutionized various aspects of our lives, and education is no exception. In recent years, AI has been increasingly integrated into the field of education to provide personalized learning experiences and adaptive learning environments with the aim of enhancing the learning process. This thesis aims to explore the role of AI in education, discussing its potential benefits, challenges, and ethical considerations.

Personalized education refers to the tailoring of learning experiences and instruction to meet the individual needs and preferences of each student. The role of AI in gathering and analyzing learner data is crucial for providing personalized learning experiences [2, p. 4]. With the help of AI-powered algorithms, educators can create personalized learning paths, recommend specific resources, and provide targeted support to students. One way AI facilitates personalized education is through adaptive learning platforms. These platforms utilize AI to assess students' performance, identify areas of difficulty, and deliver customized content and activities to address their individual learning needs. For example, AI algorithms can analyze students' responses to questions and adapt the difficulty level of subsequent questions based on their performance, ensuring that each student is being challenged at the right level.

In addition, AI-powered educational software can provide real-time feedback to students, allowing them to track their progress and receive immediate support when they encounter difficulties. This personalized feedback loop can enhance student engagement and motivation, as it fosters a sense of autonomy and mastery in the learning process.

The integration of AI in personalized education offers various benefits to students, educators, and educational institutions. Firstly, AI enables a more efficient use of educational resources by automating routine tasks such as grading, data analysis, and content curation. This allows educators to focus on providing personalized support and mentoring to students, ultimately improving the overall quality of education. Moreover, AI-driven personalized education can suffice for diverse learning needs,

ensuring that every student receives instructions that suit their individual requirements. By accommodating different learning styles, paces, and preferences, AI promotes inclusivity and equity in education, addressing the unique needs of each student. Additionally, personalized education powered by AI has the potential to improve learning outcomes by identifying and addressing gaps in students' understanding in real time. Through continuous assessment and adaptation, AI can help students master concepts at their own pace, leading to deeper learning and retention.

As an example, the AI-powered language-learning application Duolingo can be described. It offers personalized training pathways based on the user's skills, preferences, and progress. The platform integrates a smart bot that adapts to the learner's abilities, providing a tailored learning experience. Duolingo maintains an optimal level of challenge to keep learners engaged through a points-based reward system, making it an effective solution for continuous learning and knowledge maintenance.

While the role of AI in personalized education is promising, it also presents certain challenges and considerations. One of the primary concerns is the ethical use of AI in education, particularly regarding data privacy and student autonomy. As AI systems collect and analyze large amounts of student data, there is a need to ensure that this information is protected and used responsibly. The use of AI applications can be in conflict with privacy and self-determination of those involved - the (partial) modelling of a student can be seen as a violation of this, especially if no restrictions are placed on the possible use of such a model [3, p. 14]. Guidelines and regulations must be clearly established to safeguard student privacy and prevent the misuse of personal data. Moreover, the implementation of AI in personalized education requires significant investment in technology infrastructure, professional development for educators, and ongoing technical support. Ensuring righteous access to AI-powered educational resources and training for teachers is essential to prevent furthering the digital divide and disparities in educational opportunities.

Besides, there is a need to critically examine the role of AI in shaping the learning experience and the potential impact on human interaction in education. While AI can provide personalized support, it should complement, rather than replace, the role of teachers in fostering meaningful connections with students and providing social-emotional learning experiences.

Looking ahead, the role of AI in personalized education and adaptive learning is poised to expand further, driven by advancements in machine learning, natural language processing, and educational data analytics. As AI technologies continue to evolve, they have the potential to offer even more sophisticated personalized learning experiences, utilizing data and adaptive feedback mechanisms to satisfy diverse learning needs.

Furthermore, the integration of AI in education necessitates ongoing research and evaluation to assess its impact on student learning outcomes, engagement, and well-being. Lengthwise studies and experimental research can provide valuable insights into the effectiveness of AI-powered personalized education and inform best practices for its implementation.

In conclusion, the role of AI in personalized education and adaptive learning is transformative, offering the potential to revolutionize the way students learn and educators teach. By harnessing the power of AI to provide tailored learning experiences, address individual learning needs, and enhance educational outcomes, personalized education is primed to become more inclusive, effective, and engaging. However, it is essential to approach the integration of AI in education thoughtfully, addressing ethical considerations and challenges, and ensuring that AI complements the essential role of educators in nurturing the holistic development of students.

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ANALYSIS OF SMART HOME SECURITY METHODS

The aim of the research was to analyze and investigate the methods of securing a smart home system. Based on this study, data was obtained from various sources.

Comfort is the first concept that comes to mind for modern individuals when choosing their own living space. With each passing day, information technologies are evolving more and more, and today, few people are surprised by "smart" household appliances and other technological capabilities. Relatively recently, the term "smart home" has appeared in human usage.

A smart home is a home in which devices are connected, can be customized, programmed, and controlled remotely using a smartphone or computer [1].

Advantages of using a smart home system include the following:

- increased security level;
- optimization of energy consumption;

- convenience and comfort;
- entertainment and relaxation opportunities [2].

Disadvantages of the smart home system are:

- dependence on the internet and electricity;
- privacy and cybersecurity issues;
- high standards and device compatibility requirements;
- high installation costs;
- need for specialized maintenance [3].

By utilizing smart home technologies and having constant access to the internet and electricity, various processes can be configured according to the needs of each family member. Additionally, the security level can be increased. Devices such as surveillance cameras, smoke detectors, water sensors, and alarms can quickly alert homeowners to dangers in the home and allow remote management of security systems. However, such complete dependence on the internet can limit or completely impair functionality, and it also increases vulnerability to cyberattacks and the loss of personal data and control systems. It is not possible to fully protect a smart home system, but measures can be taken to make it more difficult for attackers to compromise.

Among such methods, the following can be highlighted:

- network segmentation;
- strong passwords;
- two-factor authentication;
- data encryption;
- firmware updates;
- device isolation;
- intrusion detection with specialized hardware or software;
- physical security;
- user education.

Performing network segmentation and device isolation can increase the security level of devices, prevent unauthorized access to devices, and limit the damage caused by compromised devices. However, it should be noted that these methods can be complex to configure and may partially restrict the functionality of devices. Using strong passwords and two-factor authentication can also prevent unauthorized access to devices, although these methods may be inconvenient for users, they are effective because an attacker would need to find other ways to crack passwords and bypass the additional security layer. Data encryption is also an effective method of protecting confidential data from unauthorized access, but it should be noted that such a method may slow down performance. Firmware updates allow users to address existing vulnerabilities and errors in security and improve the functionality of devices. In order to ensure that users do not forget to update the firmware, it is advisable to set reminders or, if possible, enable auto-updates. However, it should be noted that some updates may cause network failures, and this should also be taken into account and problems should be addressed promptly. Using devices such as smart locks, surveillance cameras, motion sensors, and other devices can help homeowners detect potential

threats. Using specialized anomaly detection software, such as Suricata, Snort, Bro IDS, etc., can help analyze network traffic and detect threats in real-time. These tools are equally effective, but they can be expensive to set up and maintain. Another important method is user education to prevent common mistakes and maintain security and confidentiality, including users implementing methods such as using strong passwords and two-factor authentication [5]. Combining the above-described options into a unified complex will help enhance the security level of the smart home system. However, it is worth considering that the use of the methods described above will not protect the system by one hundred percent, but it will definitely complicate the hacking process.

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EVOLUTION OF GAME DESIGN ELEMENTS IN POKÉMON AND ANIMAL CROSSING: A COMPARATIVE STUDY

The gaming industry has undergone significant evolution, witnessing advancements in technology, design methodologies, and player preferences. Among standout franchises, Pokémon and Animal Crossing have captured global attention with their distinctive gameplay experiences. This thesis delves into the evolutionary trajectory of game design elements within these franchises, explaining their transformation over time and the implications for players and developers.

Pokémon made its debut in 1996, introducing players to a world inhabited by fantastical creatures known as Pokémon, which trainers capture and train for battles. Its turn-based combat system, collection mechanics, and social interactions revolutionized the role-playing game (RPG) genre. Animal Crossing emerged in 2001, offering a serene life simulation experience where players reside in a village populated

by anthropomorphic animals, engaging in various activities such as fishing, bug catching, and home decoration. Both franchises gained immense popularity, spawning sequels, spin-offs, merchandise, and influencing popular culture beyond gaming.

Initially, Pokémon relied on sprite-based graphics and limited hardware capabilities, constraining its gameplay mechanics. However, subsequent iterations capitalized on technological advancements to introduce 3D graphics, online multiplayer features, and augmented reality elements, enhancing player immersion and interactivity.



Figure 1 – comparison of sprite-based graphics in the initial Pokémon games with modern 3D graphics

In contrast, Animal Crossing maintained its quaint charm and simplicity throughout iterations, prioritizing player autonomy, community-building, and real-time gameplay mechanics. While Pokémon embraced competitive gaming and strategic depth, Animal Crossing focused on fostering emotional connections and providing a tranquil escape from reality.



Figure 2 – A serene village scene from Animal Crossing: New Horizons

The evolution of Pokémon's game design brought numerous advantages, including expanded gameplay features, enhanced graphics, and a thriving competitive scene. However, it also faced criticism for repetitiveness and monetization practices in recent games. Conversely, Animal Crossing's enduring appeal lies in its relaxing atmosphere, wholesome interactions, and continual updates, fostering a sense of belonging and creativity among players. Nonetheless, it has been scrutinized for occasional lack of innovation and reliance on repetitive tasks.

In conclusion, the evolution of game design elements in Pokémon and Animal Crossing mirrors the dynamic nature of the gaming industry, balancing innovation with tradition to appeal to diverse player preferences. While Pokémon evolved to embrace technological advancements and competitive gaming, Animal Crossing stayed true to its roots, emphasizing simplicity and community-building. Both franchises continue to captivate audiences worldwide, showcasing the legacy of their timeless gameplay experiences. Understanding the evolution of these iconic franchises offers valuable insights for future game developers aiming to create memorable and engaging experiences for the players.

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CRYPTOGRAPHIC PROTECTION OF INFORMATION

The aim of this study was to investigate the problem of protection of information networks. In particular, attention is drawn to the lack of timely intervention in cases where the reliability of data transmission and its content is at risk. Human intervention can be both untimely and ineffective. Also, one should not forget about the human factor, negligence, incompetence of personnel, which can nullify the technical potential of even the most advanced information protection systems. In order to protect an uninitiated person from incorrect actions with information technologies, the doctrine of information protection, called cryptography, can be used.

Cryptography is the science of mathematical methods of ensuring confidentiality, integrity and authenticity of information [1].

As an example, I suggest you familiarize yourself with the replacement table for two ciphers (Fig. 1).

| Відкр. текст | Шифр 1 | Шифр 2 | Відкр. текст | Шифр 1 | Шифр 2 | Відкр. текст | Шифр 1 | Шифр 2 |
|--------------|--------|--------|--------------|--------|--------|--------------|--------|--------|
| А | В | ^ | М | Т | № | Ч | М | Σ |
| Б | И | @ | Н | Ц | # | Ш | У | ∇ |
| В | О |) | О | . | - | Щ | Д | γ |
| Г | А | + | П | Ж | = | Ъ | Э | χ |
| Д | Щ | < | Р | Г | (| Ы | Н | ⊕ |
| Е | П | > | С | Л | ? | Ь | Ю | × |
| Ж | К | ∇ | Т | Х | % | Э | Ы | ω |
| З | Б | ♦ | У | С | ⊗ | Ю | Ш | \$ |
| И | Ъ | * | Ф | Ь | ! | Я | Е | Δ |
| К | пробіл | ♥ | Х | Ч | № | пробіл | Ф | ∞ |
| Л | Р | ♣ | Ц | З | ® | . | Я | ♠ |

Fig. 1. Substitution table for two ciphers

Depending on the presence or absence of a key, coded algorithms are divided into cipher and cryptography. Depending on the correspondence of the encryption and decryption keys - symmetric and asymmetric. Depending on the type of transformations used - wildcards and permutational. Depending on the size of the encrypted block - into stream and block ciphers.

Regarding crypto-algorithms, there are several classification schemes, each of which is based on a group of characteristic features. Thus, the same algorithm "passes" through several schemes at once, ending up in any of the subgroups in each of them.

The main scheme of classification of all crypto-algorithms is as follows:

- Cryptography. The sender and receiver perform a transformation on the message that is known only to the two of them. The encryption algorithm itself is unknown to outsiders.

- Key cryptography. The algorithm of influence on the transmitted data, which is known to all third parties, but it depends on some parameter - the "key", which only the sender and the recipient have.

- Symmetric crypto-algorithms. The same block of information (key) is used for encoding and decoding a message.

- Asymmetric crypto-algorithms. The algorithm is such that one ("open") key is used to encrypt the message, known to everyone, and another ("closed") key is used for decryption, which exists only for the recipient.

The work shows that throughout its history, humanity has needed encryption of one or another information. A whole science - cryptography - grew out of this need. Previously, cryptography served only the interests of the state, but with the advent of the Internet, private individuals became interested in its methods [2].

Today, cryptography is widely used not only by hackers, but also by fighters for freedom of information, the financial sector, military structures and ordinary users who want to protect their data on the network. The relevance of cryptography will not fade in the coming centuries.

Protection of the SAP system

The structural diagram of the complex according to the placement of its constituent parts on separate technical means is shown in the figure.

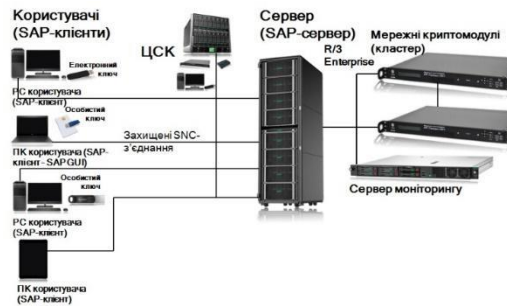


Fig. 2. Protection of the SAP system

The complex includes:

- the SAP client protection software complex "IIT SAP Protection. Client" consists of:
 - SNC libraries (connection protection libraries) for the SAP client;
 - SSF libraries (secure storage and forwarding libraries) for the SAP client;
 - CSK user libraries in accordance with the CSK user software complex "IIT User CSK-1";

the SAP server protection software complex "IIT SAP Protection. Server" includes:

- SNC libraries for the SAP server;
- SSF libraries for the SAP server;
- CSK user libraries;
- server protection management tools;
- SAP server protection monitoring agent;
- software package for remote monitoring of SAP server protection "IIT SAP Protection. Remote server monitor".

KZI software implements the complex operation logic and is integrated directly into the client and server parts of the SAP system (SAP client and SAP server), through the mechanisms and interfaces of cryptographic information protection defined in the SAP system. Software tools of the KZI complex can use external hardware tools of the KZI, such as electronic keys, network cryptomodules, etc [3].

SNC libraries (connection protection libraries) as part of the SAP client and SAP server are designed to implement authentication mechanisms for users of the SAP system on the server during user connection to the server (establishing a connection with the server), by implementing the mutual authentication protocol parties, and ensuring the confidentiality and integrity of information transmitted between users and the SAP system server during their interaction, by encrypting information and forming and verifying cryptographic checksums.

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CORE CONCEPTS OF MACHINE LEARNING

Learning is a process familiar to everyone. People learn every day and demonstrate excellent results in this process. They observe patterns in the changing environment around them, construct a certain model of the changes in this environment, and make certain decisions. The environment reacts in a certain way to the decisions made, and people again adjust their model of the world.

Machine learning is a simplified (machine-adapted) version of the learning process that occurs with humans. Typically, machine learning has a certain set of examples, observations, and responses to these observations. The task is to construct models that will effectively describe the available data and make reliable predictions.

Machine learning differs from what we are used to because we are trying to teach the computer to learn.

There are two types of learning:

1. *Inductive learning*
2. *Deductive learning*

Inductive learning is familiar to everyone because it involves observing the world and constructing models that explain the causes of various phenomena. These models are then repeatedly tested, some of them "surviving" to be used and improved, while others are completely discarded. *Deductive learning* is similar to school mathematics, where students are given ready-made formulas and taught how to apply them in practice.

Machine learning is inductive learning because we teach the machine mainly to learn from examples, observing a large number of real examples, building models on them, testing them, and applying them to more examples.

The goal of machine learning is to predict the outcome based on input data. The more diverse the input data, the easier it is for the machine to find patterns and the more accurate the result.

So, if we want to teach a machine, we need three things: *data*, *features*, and *algorithms*.

Data. If we want to detect spam, we need examples of spam emails; to predict stock prices, we need a history of prices; to learn about users' interests, we need their likes or posts. We need as much data as possible. Tens of thousands of examples is a minimum [1].

Data is collected in different ways. Some people do it manually – the process is slower, there is less data, but it is error-free. Other people do it automatically – they just feed the machine everything they find and hope for something better. The smartest ones, like Google, use their own users for free labeling. Think of ReCaptcha, which sometimes asks to "find all the road signs in the picture" – and that's it.

Signs. We call them features. Features, properties, characteristics, signs – they can be the mileage of a car, user gender, stock price, or even the frequency counter of a word appearing in a text.

The machine needs to know what exactly to look for. It is good when the data is simply laid out in tables – the names of their columns are the features. But what if we have a hundred gigabytes of cat pictures? When there are a lot of features, the model works slowly and inefficiently. Often, selecting the right features takes more time than anything else in training. However, there are also reverse situations when the user decides to select only the "correct" features from his point of view and introduces subjectivity into the model, in result it starts to lie wildly.

Algorithm. The same task can almost always be solved in different ways. The choice of method determines the accuracy, speed of operation, and size of the resulting model. But there is one nuance: if the data is "garbage", then even the best algorithm will not help. Don't get hung up on percentages; it's better to gather more data.

For further understanding, it is necessary to recognize the differences between *artificial intelligence*, *machine learning*, and *neural networks*.

Artificial intelligence is the name of the entire field, like biology or chemistry. *Machine learning* is one branch of artificial intelligence. Important, but not the only one that exists. *Neural networks* can be considered a type of machine learning. They are popular, but there are others just as good. Deep learning is the architecture of neural networks, one of the approaches to their construction and training. In practice, few distinguish where deep neural networks are used and where they are not very relevant. People usually mention the name of a specific network and that's it.

You can only compare things on the same level. Otherwise, it's complete nonsense, like "Which is better: a car or a wheel?". Don't equate terms without reason to avoid misunderstandings.

In practice, machine learning encompasses various techniques and methodologies, including *supervised* and *unsupervised* learning.

Supervised learning is similar to having a teacher who tells it how to do things right. It explains that in this picture, there is a cat, and in this one, there is a dog. So, the teacher has already divided all the data into cats and dogs, and the machine learns from specific examples [2].

In *unsupervised* learning, the machine is simply given a lot of animal photos on the table and told, "Figure out who looks like whom here." The data is not labeled, there is no teacher for the machine, and it tries to find any patterns on its own without explicit guidance.

Obviously, with a teacher, the machine learns faster and more accurately, so it is much more often used in practical tasks. These tasks can be divided into two types: *classification*, which predicts the category of an object, and *regression*, which predicts a position on a numerical line.

Today, a computer only executes precise instructions provided by a human. When writing any application, a programmer uses a high-level language, and then a translator program translates this application into machine language directives that the computer processor understands. Thus, it becomes clear that the computer itself is

fundamentally incapable of thinking, but high-level programs make it relatively intelligent.

Despite the distant prospect of ubiquitous artificial intelligence, its components are successfully used for solving practical tasks. A vivid example of this is machine learning.

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Session work № 5

CURRENT RESEARCH IN THE FIELD OF ENGINEERING SCIENCES

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MONITORING AND MANAGEMENT SYSTEM FOR HEAT SUPPLY BASED ON THE IoT CONCEPT

To ensure the process of heat supply in Ukraine a centralized heat supply system is predominantly utilized. Due to inconsistencies in the modernization stages of the heating plant equipment (HP), problems concerning integration into a unified data exchange system arise, complicating evaluation processes and management. Analyzing monitoring and management systems, we conclude that heating plants in Ukraine do not use a systematic approach [1] in building information exchange between system components.

To facilitate information exchange in the HP system today, various technical solutions are used, namely: organized communication through dedicated fiber optic lines and GSM networks; part of the collected information (mainly meter data) is archived and transmitted to dispatch observation.

Problems and reasons inherent in the existing approach arise due to the lack of a systematic approach. There is insufficient equipment for information exchange, forcing HP engineers to develop unique software for typical equipment. Diversity of equipment and data processing systems leads to inconsistency in interaction between HP groups; lack of a unified information processing center prevents generalization of information and systematic analysis of situations.

The main reason for the lack of a unified information base, in our opinion, is the absence of a strategy in building an information system. It results in the inability to formulate technical specifications for new systems (allowing the acquisition of equipment that integrates into the system and does not require the development of special software for each new object). In addition, 40% of issues related to solving the

energy conservation problem belong to the management sphere, and 60% to the sphere of using innovative technologies [3].

Therefore, implementing a systematic approach in the construction and strategy of information systems of HPs and DH networks, as well as using modern tools for organizing work within the Internet of Things (IoT) concept, will improve management efficiency in the heating supply system. One of the important characteristics of IoT systems is the ability to analyze and process large volumes of data. Applying machine learning algorithms and artificial intelligence allows identifying patterns, predicting events, and making informed decisions to improve and optimize the system's operation. The implementation of such technology provides a mechanism for solving problems such as forecasting energy resource volumes, optimizing the power of generating and pumping equipment, reducing network loads, and improving heating efficiency. Thus, achieving the set goals through the application of the IoT concept will allow: to obtain a unique equipment identification system; use MQTT technology for data collection, enabling message exchange between devices on a "publisher-subscriber" basis; use software and hardware complexes for integration of existing equipment, allowing cross-conversion Modbus to MQTT and vice versa.

The presentation will provide a technical solution for building telecommunications network of the IoT system, show the network structure, which will support real-time data transmission and provide communication between various components of the intelligent heating system; demonstrate a conceptual approach to developing hardware for integrating existing equipment and appropriate software. Further research will focus on developing a database and knowledge to improve the efficiency of information storage and analysis, as well as developing a methodology to improve efficiency of balancing HP loads based on the IoT system.

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PECULIARITIES OF USING ARTIFICIAL INTELLIGENCE IN MECHANICAL ENGINEERING

The person has a very close connection with technology. In general, any aspect of life is impossible without the use of various technologies. The machine building sector is one of the most competitive of all industrial sectors.

In today's world, we are witnessing rapid development with changes in the global field of mechanical engineering, driven by technological innovations, new business processes, operating rules and requirements in various engineering sectors. Digitalization, new complex products, and the growing demand for highly skilled personnel are potential opportunities for machine building companies, but also serve as obstacles to growth. Innovative processes, predictive maintenance, and innovative service models are increasingly being used in the machine building industry. The use of advanced digital technologies in mechanical engineering has become a necessity to prevent the risk of losing relevance in the modern industrial market. The global industrial market is evolving due to technological innovations in mechanical engineering and progress in process management [4, c.5].

Today, we can already observe certain successes of artificial intelligence (AI) in solving complex problems in both purely scientific fields and in the fields of technology, business, economics, finance, medical diagnostics, and other fields related to intellectual activity [2].

AI in mechanical engineering is used for:

1. Increasing productivity. AI can automate many tasks, such as design, prototyping, testing, and production. This can lead to significant reductions of time and costs.
2. Improving quality. AI can help identify and eliminate defects in the early stages of design and production. This can result in better product quality and fewer errors.
3. Risk reduction. AI can help in predicting and preventing accidents and other hazardous situations. This can make the work environment safer for people.
4. Opening new opportunities. AI can help in developing new products and services that were previously impossible. This can give companies a competitive advantage.

Also, with the introduction of AI in the machine building industry, we can expect a sharp increase in labor productivity, changes in the structure and volume of production costs.

Among the most common applications of AI in mechanical engineering are:

1. Design. AI is used for automated design of parts, assemblies, and machines. This can help to create more optimal and efficient designs.

2. Prototyping. AI is used to create virtual prototypes that can be tested and improved before physical prototypes are made. This can save time and money.

3. Testing. AI is used to automated testing of products to ensure compliance with safety and quality standards. This can help in identifying and eliminating defects at early stages.

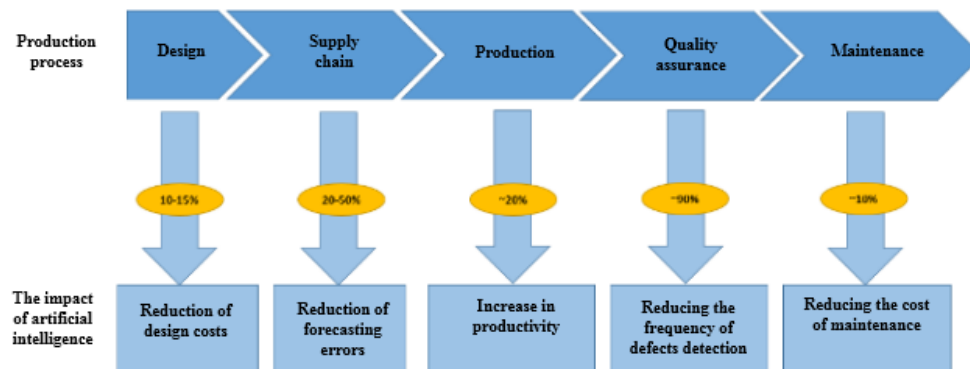
4. Production. AI is used for automated control of robots and other equipment. This can lead to more accurate and efficient production.

5. Maintenance. AI is used to predict and prevent breakdowns. This can help to reduce downtime and repair costs.

Artificial intelligence will define the next decade of mechanical engineering and continue to increase its influence on software used in the industry. Software vendors are developing AI systems to advise engineers on material selection and compliance with established codes and standards. Meanwhile, automation software allows AI to perform tasks such as reviewing change orders, managing material estimates, and finding opportunities to standardize parts across multiple products.

AI in engineering is increasingly being used to support the entire production chain, providing a detailed quantitative assessment of current market data and enabling effective strategic decision-making (Picture 1).

Besides, AI is used in autonomous systems. These include vehicles and drones, as well as robots that manage parts in factories and warehouses (they may someday replace conveyor belts) [3].



Picture 1. Using artificial intelligence to improve production processes

The enumerated positive economic outcomes, in turn, give rise to serious problems, namely:

1. There is a need to employ laid-off personnel with professional knowledge and special skills.

2. More efforts are needed to recruit workers with new professions and specialties specific to the operation of robotic equipment.

However, when it comes to the economic consequences of implementing AI in Ukraine's mechanical engineering sector, there are several issues that deserve attention:

1. There is a war going on and all resources are being spent on defense. It is important to prioritize the production of ammunition, missiles, unmanned aerial vehicle (UAV), unmanned ground vehicles (UGV), firearms, and military technology.

2. Emigration abroad is more than 5 million people. The most productive part of the population serves in the army, and a large number of specialists and future specialists have perished.

3. Some enterprises, including the infrastructure of the machine-building industry, especially in the occupied territories, have been looted and destroyed. And this process continues every day. Almost 40% of Ukraine's economy has been destroyed. Thanks to the help of other countries with finance, equipment and weapons, Ukraine is able to resist the aggressor. However, this cannot continue indefinitely. It is very difficult for our country to resist such a powerful aggressor, the Russian Federation, which has enormous economic and human resources.

The war-related circumstances have a particular impact on the solution of these problems related to improving the efficiency of economic outcomes.

It is expected that the use of AI in mechanical engineering will continue to grow in the coming years. AI can help to create more intelligent and autonomous machines that can learn and adapt independently. This could lead to a revolution in mechanical engineering and other industrial sectors.

It is important to note that AI is not a replacement for human labor. AI can help people in performing tasks more efficiently, but it cannot fully replace human intelligence and creativity [1].

Thus, the main tasks at the moment are:

1. Training of highly qualified specialists capable of solving complex tasks and problems in the field of automation in mechanical engineering and creating intelligent mechanical systems using artificial intelligence and robotics. This involves developing the latest and using existing scientific methods, technologies, devices and systems in research institutions and at leading enterprises of the industry, transformation of the labor market through interaction with employers and other stakeholders.

2. Reconstruction and revitalization of the mechanical engineering industry, followed by the implementation of AI.

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THE PROSPECTS OF USING PLASMA WELDING IN THE MACHINE-BUILDING INDUSTRY

Plasma welding is an advanced method of joining metal parts, with high efficiency and a wide range of applications. This article discusses the main aspects of plasma welding, including its principle of operation, advantages and limitations. The prospects for the development of this method and its impact on modern industry will also be outlined.

Plasma welding is an arc welding process that uses a plasma torch to join metals. The main feature of plasma welding is the ability to achieve higher temperatures than standard arc welding. This provides better conditions for metal penetration during operation.

Plasma welding is one of the most modern and innovative methods of welding materials. Wide application possibilities are provided due to several advantages:

- the ability to conduct the process using high temperatures;
- reducing the sensitivity of the process to arc length; arc burning even at low currents;
- increased speed of the process;
- increased efficiency;
- ability to work with materials up to 1cm thick;
- precise control of penetration depth;
- practically complete absence of slag and waste during work;
- ease of installation and use of the equipment [3].

The main disadvantage of plasma welding is the high cost of equipment and labour. Despite the ease of installation and use of the plasma torch, the equipment requires careful care and regular cleaning. The torch and electrode of the plasma torch must be changed promptly to avoid problems in the operation of the equipment. Process and equipment temperatures must also be carefully monitored to avoid overheating. Specialists working with a plasma torch must undergo special training. The plasma torch operator must have certain knowledge and skills.

Other disadvantages are:

- during plasma welding, harmful gases and dust are formed;
- during the process, the worker contact with strong ultraviolet radiation, which has a negative impact on health;
- necessity of constant monitoring of the cooling due to the high operating temperature;
- huge noise during the welding.

All disadvantages are easily offset by the advantages of plasma welding. High efficiency and increased productivity outweigh the costs incurred in equipment and personnel training [1].

Plasma welding is suitable for working with almost any type of metals and alloys, including titanium and its alloys; aluminium and its alloys; magnesium and its alloys; copper and its alloys; tungsten; high-alloy, low-alloy or unalloyed steels; cast iron; nickel alloys; various non-conducting metals; other dissimilar metals [3].

In plasma welding, the source of heat is a stream of gas, ionized in an arc, which during collision with a less heated body is deionized with the selection of a considerable amount of heat. This allows it to be considered as an independent source of heating. The temperature of the plasma jet depends on the degree of ionization of the gas. To increase it, a column of a column of compressed arc burning in a narrow channel is used, through which gas (argon, nitrogen, hydrogen) is fed under pressure, thus increasing the degree of its compression. Under such conditions, the gas temperature in the arc column reaches 30,000°C [4].

A device in which a plasma jet burns is called a plasma torch or plasmatron. Three schemes of plasma formation are possible: direct action arc, indirect action arc and combined arc [2].

In direct arc plasma welding, the welding object is a part of the welding chain. In plasma welding with an indirect action arc, the arc discharge burns between the electrode and the nozzle or between two electrodes in the plasmatron, while the welding object is heated by the heat of the plasma jet [1].

Plasma welding is primarily used in industrial enterprises. This is explained by the high cost of the plasma torch and the need for special training of personnel. For individual or household use, plasma welding may be too expensive as a method of work.

In industry, plasma welding can be used in almost all industries. Plasma welding is particularly used in industries that place high demands on the quality of the welded joint and the accuracy of the work, for example, in instrument making, the aerospace industry, the medical industry and many others. In addition, plasma cutting is of great importance in the chemical and petrochemical industries.

As the demand for high-performance and efficient manufacturing processes grows in the machine-building industry, plasma welding is likely to become an increasingly popular choice. So, the prospects of using plasma welding in the machine-building industry are promising.

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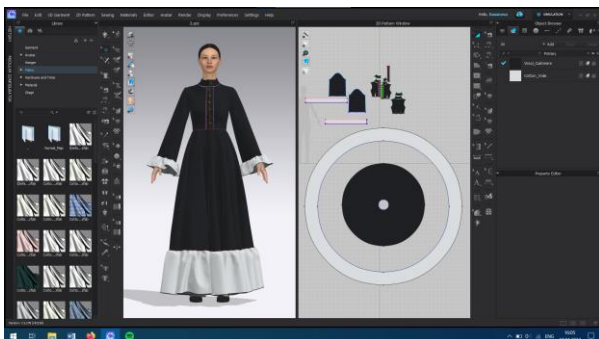
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USING 3D TECHNOLOGIES IN FASHION INDUSTRY

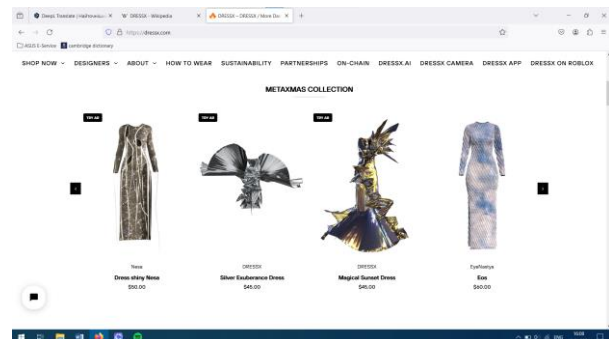
The purpose of this study is to analyze the advantages of using 3D technologies in modern garment production. In the course of the study, a 3D prototype of a historical dress was developed in the CLO3D software app (Pic.1).

3D modelling of clothes is the process of creating a three-dimensional prototype of clothes from 2D digital patterns. Today, there are many applications for creating 3D clothing models, namely CLO3D, Marvelous designer, Style3D, Tuka3D and others. The popularity of 3D fashion design began to grow a few years ago, but the pandemic has significantly accelerated this process by making it impossible to hold online shows. Live shows have been replaced by so-called «model-free shows».

The biggest advantage of creating 3D clothing visualisations is speed. By creating a three-dimensional model, a designer can check the product for all sizes without creating real prototypes, which take a lot of time. That is, we can save time on such stages as cutting, sewing and fitting the product on the model. If certain shortcomings in the fit of the product are identified using the "Stress map" (Pic.3), the designer can easily correct this in the field with 2D patterns and adjust the corresponding model to the size of the consumer.



Pic.1 Clo3D software interface

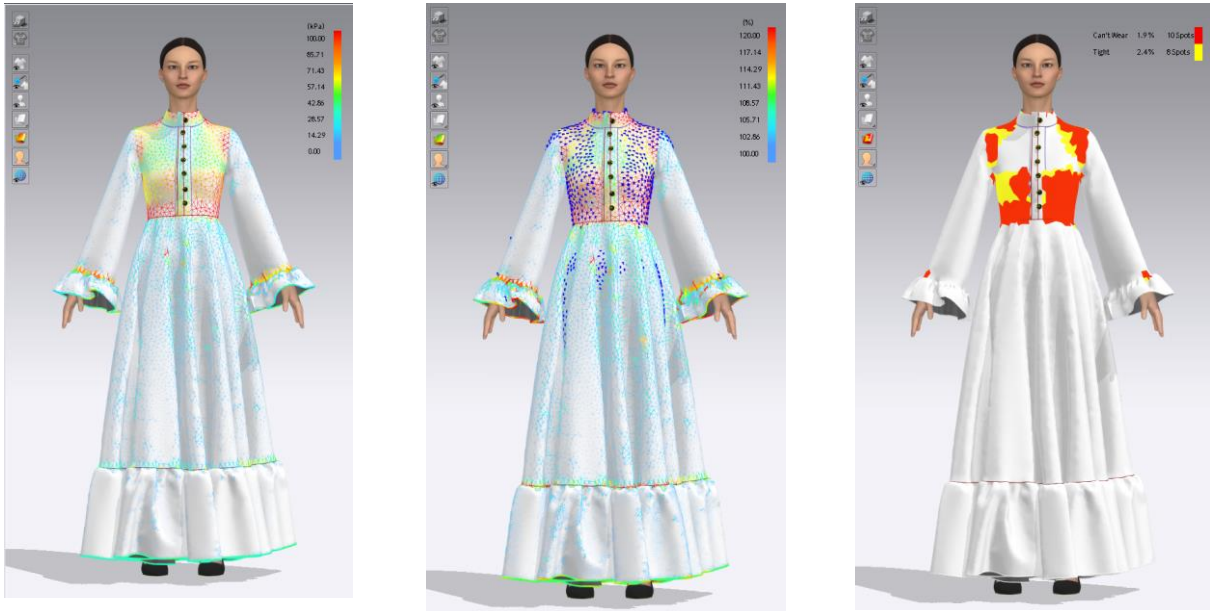


Pic.2 Platform DressX

The next advantage of 3D visualisation is environmental friendliness and smart consumption. Creating prototypes from fabric consumes a lot of resources, which pollutes our planet, increases CO2 emissions into the air and also leads to global warming on our planet. Therefore, the use of 3D significantly reduces the single-use of fabric for creating mock-ups. Another factor of environmental friendliness is the creation of so-called one-off images for a photo shoot, for example. With the help of 3D visualisation, you can "dress" any dress or suit for a creative photo without using real fabric, shoes and accessories. This is the principle behind the American company

DressX.(Pic.2) This platform allows its users to "dress" in virtual clothes for photos and videos.

It is also a great opportunity for designers to see how the same garment will look in different colours and textures. In CLO3D, this can be done in two clicks, whereas creating real products in different colours and using other types of fabrics requires a lot of time, money and materials. Also, with the help of 3D visualisation, you can easily select accessories, for example, the colour of buttons for a dress



Pic. 3 Using different types of «Stress Map»

There are also advantages for buyers in 3D visualisation. Some manufacturers have already begun to introduce virtual fitting rooms for their clothing stores, where consumers can use their phone's camera to try on clothes and see if they fit and choose the right size.

Summing up, we can clearly say that the use of 3D visualisation in the modern fashion business is quite widespread and popular, as well as a convenient tool for designers, business owners and customers alike.

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FASHION INDUSTRY: CURRENT PROBLEMS AND POSSIBLE SOLUTIONS

The fashion industry is at a crossroads, struggling with a multitude of challenges that threaten its traditional practices and structures. From the growing demand for sustainable and ethical fashion to the rise of fast fashion and its environmental impact, the industry is being forced to reassess its priorities. In this paper, we will examine some of the most common problems facing the fashion industry and consider potential solutions.

The well-known fact that the fashion industry ranks as the second most polluting sector [1] globally underscores the urgent need for sustainability as its primary challenge. The production of clothing significantly depletes natural resources and generates substantial quantities of hazardous waste discharged into water sources. Furthermore, the consumption of fast fashion, with its emphasis on treating clothing as fast-moving consumer goods, aggravate environmental issues by generating significant waste.

The pressing need for change has brought several opportunities that revolve around establishing new, sustainable business models. These models are centered on the principles of reducing, reusing, and recycling, paving the way for a more environmentally conscious approach to commerce [2]. The escalating demand for sustainably produced goods has led to a notable surge in the emergence of new fashion brands that prioritize sustainability. Concurrently, consumer movements advocating for zero waste and the principles of reducing, reusing, and recycling are gaining momentum. As awareness of the environmental impact of human consumption grows, consumers are increasingly scrutinizing their consumption habits and the value chains of companies.

Another concern with no simple solution in sight, are the poor working conditions of garment workers in developing countries. Even more hidden than other issues, forced and trafficked labor form a significant portion of the fashion supply chain, primarily concentrated in the second and third tiers of the supply chain [1]. The pathways to overcoming this problem include awareness campaigns, strengthening legislation, providing support for victims, and international cooperation.

Without a doubt, the issue of product counterfeiting presents another significant challenge for fashion brands in the current era. Selling original high-value products becomes a daunting task in a market saturated with a fervent desire for cheap knock-offs. After a fake product enters the market, distinguishing its authenticity from the genuine item can be very difficult for consumers. Using NFT-based product passports to create unique digital tokens linked to a specific product, implementing holographic labels and watermarks, encouraging your consumers to buy authentic items directly from you, using software programs that can help you detect when someone is using

your images or content without permission on the Internet could be a few ways to solve this issue [3].

The constant struggle to secure competent personnel has been a persistent difficulty for the fashion industry and it is anticipated to remain a critical challenge in the nearest future. In order to attract skilled individuals, the sector must consider elevating the minimum wage, eliminating the practice of unpaid internships, and diversifying its recruitment efforts to encompass a wider spectrum of backgrounds [2]. Moreover, the shift towards automation raises fundamental inquiries regarding the trajectory of the labor force. With machines increasingly taking on tasks customarily performed by human workers, a redefined approach to workforce management becomes imperative.

Finally, the fashion industry's complex supply chain is facing unprecedented obstacles, ranging from shortages of materials and employees to delays in transportation and the energy crisis. These factors are collectively increasing the expenses associated with production and distribution, affecting the bottom line of many clothing brands. In response, companies are reassessing their procurement approaches and introducing greater adaptability into their supply chains. Collaborating with suppliers, brands are enhancing nearshoring efforts by relocating manufacturing facilities in closer proximity to customers, aiming to avoid material supply issues, cut shipping costs, and uphold speedy delivery services. The problem can potentially be addressed by utilizing technology such as PLM and ERP, which provides real-time visibility into the complete product lifecycle. By consolidating all information in a centralized location, these management platforms enhance collaboration among departments and teams, facilitating the efficient sharing of data and ideas [3].

In conclusion, the fashion industry is undergoing a period of significant transformation, with a multitude of challenges influencing its operations and profitability. The negative environmental and social impact of fashion detrmines a shift towards sustainable and ethical practices. Simultaneously, the rise of copycats and product counterfeiting poses a significant threat to brand authenticity and consumer trust, underscoring the need for robust anti-counterfeiting measures and innovative solutions. The inefficiencies of distributed and global supply chains can be alleviated with the appropriate technology tools.

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BOOK ILLUSTRATION AS A FORM OF GRAPHIC ART

The aim of this research is to investigate the multifaceted nature of book illustration, analyzing its role as a visual narrative enhancer, its evolution throughout history, and its influence on shaping readers' perceptions and interpretations of literary works.

Illustrations serve as a means of conveying the emotional atmosphere of a literary work, visualizing the characters of the narrative, and demonstrating described objects [2]. In books, magazines, and newspapers, alongside the text, we often encounter drawings by artists or photographs. Their purpose is to aid in understanding what is said in the text, to illuminate its content, and to make it clear and vivid. Illustrations always contain a story, sometimes complex, such as that of a historical event, and sometimes simple. Illustration can be distinguished as an independent genre of graphic art due to one essential characteristic. Its narrative is determined not by the artist's free choice, but by the literary work [1]. Graphics encompass various forms of visual art, including drawing and printed artistic works (various types of engravings), based on the art of drawing but possessing their own visual means of expression and expressive capabilities [5]. Illustration has evolved alongside artistic movements worldwide. During the Baroque era, books were characterized by lavish forms, unconventional colors, and dynamism. However, just a century later, during the reign of modernism, the artistic design of books became more restrained. In contemporary times, minimalistic style prevails among illustrator artists, aiming to convey only essential information without unnecessary embellishments [7].

Another means of structuring a book was the initial letter (drop cap). It was used to separate sections in ancient manuscripts and printed texts. Today, artists use it to give books an antique appearance. Regarding paragraph indentation, drop caps can be distinguished as raised, sunk, or flush with the text [1].

Book graphics depict reality through imaginative and visual reproduction of its visible forms, conveying the appearance of objects and phenomena in the surrounding world. In turn, book graphics are an integral part of book publishing. A book encompasses literature, graphics, the art of typography, and printing art. Book artists develop the type of publication, the book's structure, its decorative design, and illustrative cycles. The construction of a book is traditional: book block, cover, spine, dust jacket, endpapers, title page, headers, illustrations (frontispiece, strips, inserts, tailpieces, initials, etc.), fonts. These elements, following the laws of composition, come together into a unified ensemble [3]. "The visual representation" of what one has read aids the reader in deriving pleasure from the book. People have recognized this for a long time. Illustration was known even in the ancient world (Egypt, Greece, Rome) in the form of drawings in manuscripts, and in the Middle Ages - miniatures (a work of visual art of small size, characterized by a delicate technique of execution).

Illustrations for the most significant works of world literature were created by the classics of world visual art: Botticelli, Rembrandt, Delacroix, Dore, Manet, Kustodiev, and Vrubel [5].

Before starting the actual work on illustrations, an artist considers their placement in the book. They outline the format and proportions of illustrations, the layout of the spreads, decide whether the images will be integrated into the text or if there will be inserts and endpapers, and choose the technique for execution. The placement of illustrations in a book is often determined by the nature of the publication, but ultimately, the artist's starting point is the content of the book. The artistic techniques used by the artist in their illustrations reflect their creative individuality, but they also depend on the character of the literary work. The same artist approaches questions about artistic techniques and placement methods differently in each new project.

After the initial stage of reading the literary work to envision the overall appearance of the future illustrations, the second stage of work emerges: the artist meticulously selects and extracts from various parts of the narrative everything related to character description—facial features, expressions, defining characteristics, mannerisms, and interactions with other characters [6]. The artist gathers a vast amount of material, encountering a kaleidoscope of faces. They examine numerous portraits or photographs of people who lived during the time depicted in the literary work, striving to memorize or sketch everything that defines the mannerisms and appearance of people belonging to the same circle, class, or nationality as the protagonist. This helps the artist create an image faithful to the time, historically accurate. But that's not all; the character must feel alive. And in this, only life itself can help the artist.

The final version of the illustration must contain only the most essential elements, only those that the viewer should pay special attention to. To determine this essence, the artist aims to fully depict the features of the character in all their complexity. The artist dedicates much time to studying the era and setting in which the literary work takes place. They handle a lot of museum and archival material, making sketches of furniture, household items, and, if possible, visiting the places where the events described in the novel occurred. The artist plans which key events of the novel will be depicted in the illustrations, which moment of each event most vividly characterizes the characters, striving for each character to be portrayed in their most characteristic manner, ensuring that the leading narrative thread of the writer is not lost from page to page, and planning "impactful" spreads that correspond to the climaxes of the story [4].

Book design is the artistic process of designing both the cover and the internal content of a book. It should effectively convey the book's content in a concise manner through the use of artistic graphics, typography, and illustrations. Book design is determined by its theme and concept. It can be simple or complex, vibrant or subtle, soft or bold. The presentation of a printed publication depends on the design of its cover. There are five main techniques for external book design:

Typography: Fonts are not just alphabet symbols; they can form a vivid composition. The choice of font depends entirely on the book's main theme. A standard

format can convey the content, while an unusual option can address more complex tasks, capturing the reader's attention. Modern designer fonts, with their semantic and associative elements, reveal all their advantages and features. It is important to maintain rhythmic connections between letters, as well as texture, color, and size.

Narrative-Thematic Imagery: The content of the book is expressed through images. Book illustrations should be related to specific episodes.

Weaving through Ornamentation: Such weaving is mainly placed on the spine, endpapers, and serves an auxiliary role. The content is based on meaningful components known to the reader.

Symbolic Representation: Graphics, photomontage, engraving help convey the idea based on the content. Symbols can be dynamic or static. It is important not to overdo it; overly complex images may remain incomprehensible [5]. Taken together, these and other design elements form a cohesive decorative composition, interconnected with the content of the book [1].

The cover is indeed the part that should receive attention first. It's the visual representation that will sell. A well-designed cover increases recognizability, customer interest, and therefore sales. It's important for the design to align with the book's content, and the cover should not be too bright or too dull, while the page layout should leave a pleasant impression. They will create an original layout design that will surely appeal to readers. Custom book covers should include the following elements: clear title and subtitle, key element that grabs attention, visually striking composition with non-distracting details, attractive visual design elements, effective use of white space. The design of a book cover, the price of which depends on the complexity of the layout, can include various elements. Essential components of cover design include: author's name, title and subtitles, background images and graphics, as well as brief testimonial annotations if they match the book's design. If the cover is created for a printed book, don't forget about the spine, which should be visible. For this, you can take advantage of attractive fonts. When choosing the right image for the book cover design, it's important to be guided by its plot, a defined scene that can be created through illustrations [2].

An important aspect of book layout development is defining the target audience for whom the printed product is intended. It's crucial to understand who will find the book interesting and how to capture their attention. Additionally, it's essential to decide on important parameters such as font, color, type of illustrations, and cover design. Some covers appeal more to certain audiences, while others may deter them, so it's important to understand the reasons behind these preferences. After analysis, work can begin on the design. All types of illustrations differ by thematic features, placement, and role in the book. Depending on the size and location, illustrations are divided into several types. A title-page illustration is located at the beginning of the book, chapter, or new section [3]. A tailpiece illustration is placed at the end of the book, at the end of a section or chapter. Inline illustrations are found within the text, usually near the part they illustrate. A frontispiece illustration is placed on the left side before the title page and serves as an illustration for the entire work. An illustration on the cover or dust jacket expresses the main idea of the book, its content, and is the most significant

illustration, the "face" of the publication. [6]. Illustration stands at the intersection of visual art and graphic design since, by using the tools and methods of art, it is subordinate to the project concept. The artist is required to become a co-author of the book, making the writer's ideas and characters more vivid, helping to better understand the content, imagine the era, everyday life, and surroundings of the book's characters. However, this does not mean that the illustration should be a simple graphic representation of the text. Above all, it is important to remember that the crucial aspect is not the method of executing the illustration, but how the technique combines with the concept and conveys the desired content and mood. This means that when choosing materials and techniques, it is worth considering convenience and practicality [3].

In conclusion, book illustration represents a unique form of graphic art that plays a vital role in enhancing the reader's experience and understanding of the text. Positioned at the intersection of visual art and graphic design, illustrations in books serve to bring the author's ideas and characters to life, providing readers with a deeper insight into the content, context, and atmosphere of the narrative. Whether through title-page illustrations, tailpiece illustrations, inline illustrations, frontispiece illustrations, or cover illustrations, each serves a distinct purpose in conveying the essence and mood of the book. The importance of book illustration lies not only in its technical execution but also in its ability to effectively communicate the desired content and evoke emotions in the viewer. Therefore, when creating book illustrations, artists must carefully consider both the artistic techniques and materials used to ensure that they align with the overall concept and message of the publication, thus enriching the reading experience for audiences.

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MODERN DIRECTION IN ART: CHARACTER DESIGN

Character design is the artistic process of conceptualizing and creating fictional or stylized characters for various mediums such as animation, video games, literature, and film. At its core, character design involves the careful consideration of visual elements such as shape, color, proportion, and style to convey the personality, traits, and backstory of a character. While character design is often associated with visual arts, it encompasses much more than just aesthetic appeal; it is a crucial aspect of storytelling and audience engagement across diverse media platforms.

In animation, character design plays a pivotal role in bringing narratives to life and capturing the imagination of viewers. Animated characters serve as the focal point of storytelling, conveying emotions, motivations, and conflicts through their visual appearance and movements. From memorable characters like Nimona from the animated film "Nimona" to the enchanting protagonists of "Wolfwalkers," character design shapes the identity of animated worlds and leaves a lasting impression on audiences of all ages.

Similarly, in video games, character design is instrumental in creating immersive gaming experiences and establishing a connection between players and virtual worlds. Well-designed game characters not only enhance gameplay mechanics but also contribute to the overall atmosphere and narrative coherence of a game. Whether it's the heroic protagonist of an action-adventure game, the quirky sidekick in a role-playing game, or the menacing antagonist in a survival horror game, character design serves as a fundamental pillar of game design, influencing player engagement and emotional investment in the gaming experience.

Character design has a profound influence on society, shaping perceptions, attitudes, and cultural norms. Through carefully crafted visual representations, characters in various media can challenge stereotypes, promote diversity, and reflect societal values. One notable example is Geralt from Rivia, the protagonist of the video game "The Witcher: Wild Hunt." Geralt's design is striking and iconic, with his rugged appearance, distinctive scars, and piercing eyes conveying a sense of strength, resilience, and mysterious allure. His character design not only reflects the gritty, medieval-inspired world of the game but also embodies complex themes of morality, identity, and destiny. His rugged appearance, marked by scars and weathered features, speaks volumes about his journey and experiences within the game's gritty, medieval-inspired world. Geralt's design doesn't merely serve as window dressing; it serves as a conduit for psychological engagement, inviting players to explore his complexities and moral quandaries. His portrayal as a morally ambiguous hero challenges conventional notions of heroism and masculinity, encouraging players to ponder the complexities of identity, agency, and the nature of heroism in society. Through Geralt's design, "The Witcher: Wild Hunt" not only entertains but also prompts critical reflection on societal norms and values, exemplifying the profound impact of character representation on cultural discourse.

Another exemplary character design that significantly influences the worldview of audiences is Aang from the animated television series "Avatar: The Last Airbender." Aang's design embodies the ethos of the show's narrative, which revolves around themes of balance, spirituality, and the interconnectedness of all living beings. As the last Airbender and the Avatar, Aang is tasked with restoring harmony to a world torn apart by war and conflict. His design reflects this role, featuring elements that convey his youthful innocence, compassionate nature, and unwavering sense of duty.

Aang's character design is not only visually distinctive but also deeply symbolic, reflecting his cultural heritage and spiritual upbringing as an Air Nomad through attire inspired by traditional Eastern garments. The tattoos adorning his body signify his mastery of Airbending and his status as the Avatar, serving as a visual reminder of his unique role in the world. Furthermore, Aang's design evolves over the course of the series, mirroring his growth and maturation as he grapples with the responsibilities of his destiny. Through Aang's design, "Avatar: The Last Airbender" communicates profound messages about identity, empathy, and the interconnectedness of all living beings, inspiring audiences to reflect on their own paths and the impact of their actions on the world around them.

The theses underscores the significance of character design as a multifaceted process that transcends mere aesthetic appeal, serving as a fundamental aspect of storytelling and audience engagement across various media platforms. In animation, characters serve as narrative anchors, conveying emotions, motivations, and conflicts through their visual appearance and movements. Similarly, in video games, well-designed characters enhance gameplay mechanics and contribute to the overall immersive experience, influencing player engagement and emotional investment. Character design also holds sway over societal perceptions and cultural dynamics, challenging stereotypes, promoting diversity, and reflecting societal values.

Notably, character design exemplifies how characters can shape audience perceptions and worldview. Characters, through their visual representations, can prompt critical reflection on societal norms and values, while also reflecting universal themes of identity, empathy, and interconnectedness. Through these characters, their respective narratives communicate profound messages about morality, resilience, and the human experience, inspiring audiences to contemplate their place in the world and the impact of their actions. Thus, character design emerges as a potent tool for cultural discourse and societal introspection, underscoring its enduring importance in shaping collective consciousness and cultural narratives.

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THE IMPACT OF FAST FASHION AND THE PROBLEMS IT CAUSES

Many modern researches show that the majority of people on the planet have started to buy several times more clothes compared to previous decades. In surveys, people admit that they buy a lot of things, some of which they have never even worn. The reason for this is fast fashion. Its influence has increased significantly due to modern influencers, who only encourage people to make impulsive purchases.

We live in industrial era and this doesn't pass without consequences. Fashion industry is developing rapidly but its negative influence on nature increases annually. Amount of greenhouse gas emissions is 5-8% of all global, about a third of micro plastic in the world's ocean is a result of using fast fashion [1].

But what is fast fashion? This is relatively new concept that has become widespread in society. Problem of fast fashion concludes in massive, cheap and usually low-quality production. Cheap labor force, terrible work conditions, colossal pollution of planet this is only the top of the iceberg. Materials used by such industries, for example, polyester allocates microfiber during laundry. It is very toxic for human organism and seeps into the world's ocean without any obstacles [2]. Polyester takes about 20-30 years to completely decompose under natural conditions, while cotton decomposes in half of a year [3].

Fast fashion products are usually disposable and end up in landfills in less than a year. Mass environmental pollution causes the formation of trash islands in the world's ocean. 40% of clothes donated to charity in low-income countries are unfit for consumption and end up in the garbage. An example of such waste is the garbage hills in Accra. Every week 15 million pieces of used clothes are delivered to Ghana's capital, that creating a "new trash landscape" on top of which cattle graze [4].

An alternative to fast fashion is sustainable fashion. Its principles are based on environmental friendliness and sustainability of clothing. For production manufacturers use recycled clothes materials. Customers are offered to buy not only high-quality but also more environmentally friendly products. This movement implies long-term use of clothing. Another way is to use natural materials, but it is not suitable for everyone because of the high cost. Sustainable fashion allows us not only to take care of nature, but also to develop the industry itself [5].

At the moment, humanity cannot quickly get rid of this problem, but inaction will only worsen the situation. You should get in the habit of making reasonable purchases. You should also pay attention to the materials from which the clothes are made. If you have financial difficulties and can't afford to buy high-quality clothes, you should try second-hand stores. Plan the purchase of new clothes in advance and determine the quantity. Try not to exceed the number mentioned in the plan. It's always hard to start somewhere, and it's even harder to get rid of some habits, but this will certainly be a big benefit in our lives.

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HOW THE WAR AFFECTED FASHION IN UKRAINE

Russia's full-scale invasion of Ukraine has made adjustments not only in our lives. The fashion industry has also changed cardinally.

During the first month in Ukraine, few people thought about what they were wearing, let alone whether it was fashionable. The most important thing was to be warm and comfortable. But Ukrainians quickly recovered from the shock and continued to live and create. And through modern fashion trends, they showed true patriotism for their country.

Nowadays, the priority is convenience and comfort. Extra, unnecessary and boring things started to disappear from the wardrobes, and Ukrainians started to wear more comfortable and practical clothes that can be easily packed in a suitcase.

Also, clothes that demonstrate a pro-Ukrainian position became fashionable. There was a need for national self-identification, which led to its demonstration through clothing, which greatly influenced the development of fashion in Ukraine. And in the world as well.

The demand for Ukrainian products has increased. People have started to pay more attention to Ukrainian clothing brands, which have just started to develop actively. More and more people, not only in Ukraine but all over the world, are trying to buy clothes with Ukrainian symbols, prints and inscriptions, and yellow and blue colors.

National Ukrainian clothing, such as embroidered shirts, dresses, and clothing with ethnic motives, has become very popular. They were increasingly worn on holidays and every day. These things became a symbol of freedom and indomitable spirit.

Fashion became slow. Slow fashion is a global trend of ecological consumption, emphasizing the value and importance of quality and the choice of materials used to make clothes. These are eco-friendly and durable clothes.

It is also worth paying attention to upcycling. This is a part of sustainable fashion, when things are given a "second life" - old clothes are creatively redesigned.

Today, some global mass brands (Zara, H&M, etc.) have left Ukraine. Ukrainian brands could fill this gap, but this requires large investments and a significant impetus, which, unfortunately, cannot be provided now.

According to Iryna Danylevska (co-founder and CEO of Ukrainian Fashion Week), Ukraine lost the war for the mass market back in the 1990s, when we allowed foreign brands to take over the mass market. In 2014, there was a second wave of Ukrainian brands taking over the mass market as a result of a surge of patriotism during Euromaidan. However, not all of them survived, as Ukrainians do not tolerate low quality, so in addition to "Made in Ukraine", brands had to confirm the quality of their products. But it was during this period that people began to get acquainted with domestic mass brands.

Over time, this wave of patriotism subsided, but after February 24, it resumed again. Now Ukrainians have started to pay attention to domestic producers again. And although current priorities do not favor the development of the mass market, the most important thing is that we have mass brands, and after the victory, our mass market will flourish.

The war affected not only mass fashion. Domestic designers projected the pain of the Ukrainian people into their collections, which were presented at Ukrainian Fashion Week International Season SS23. The color palette has changed, designers turned to Ukrainian origins and reinterpreted ancient traditions - and this is just a small part of how the war has affected the work of our designers.

Previously, Nadya Dzyak's collections featured a lot of bright colors because they inspired the designer. Now black has become a reflection of her soul.

The collections of Ukrainian designers presented during Budapest Central European Fashion Week also reflected the designers' perception of the war. The models wore T-shirts embroidered with red threads «UKRAINE» and bulletproof vests with flowers. The most painful memory of the events in Ukraine was embroidered with thread on an oversized jacket: Mariupol Drama Theater with the inscription "CHILDREN".

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NANOMATERIALS: INTRODUCTION TO NANOSIZE AND NANOTECHNOLOGY

Nanotechnology is an important and promising field that can lead to improved environment and human health and contribute to a better social and economic development. Materials in nanoscale have unique physiochemical properties which allow for completely new technical applications. Enlarged surface area and properties due to quantum physics are among the properties that distinguish the nanoscale. Nano safety has evolved as a discipline to evaluate the adverse health effects from engineered nanomaterials (Engineered nanomaterials). The prevalence of allergic diseases is increasing in the society. An additional issue is the influence of inherited factors on the health responses to Engineered nanomaterials. The aim of this thesis was to investigate the respiratory, inflammatory, and immunological effects following inhalation of Engineered nanomaterials; both sensitive and genetically susceptible individuals were used. Sensitive individuals refer to individuals with pre-existing respiratory diseases, such as allergic asthma, and genetically susceptible individuals refer to individuals prone to autoimmune and allergic diseases.

The nanometer is a unit of length, and designates one-billionth of a meter (10⁻⁹). The term “nano” is derived from the Greek word “nanos” which translates to dwarf. To give an idea of how small this unit is, it could be mentioned that a human hair has a width of about 80 000 nm.

The presences of nanosized particles (Nanoparticles) are not a new phenomenon. The origin of Nanoparticles can be divided into:

- i) Naturally occurring Nanoparticles, from natural processes such as volcanic eruptions, forest fires, earth eruption, water aerosols etc.
- ii) Anthropogenic Nanoparticles, originated from origin like combustion, engine exhaust, industrial processes, indoor cooking, etc.
- iii) Engineered nanomaterials.

In this thesis, focus will be on engineered nanomaterials (Engineered nanomaterials)

The recent technology, which allows the production of structures on the atomic scale, is entitled nanotechnology. Materials in nanoscale carry unique physiochemical properties which allow for completely new technology applications compared to the corresponding materials on a larger scale. The two main different nanoscale properties include surface and quantum effects. The surface effect causes large area-to-mass ratio, resulting in potentially enhanced chemical reactivity with the surroundings, while quantum effects may influence e.g. mechanical, optical, electric, and magnetic properties [1-3].

Nanotechnology is a very important and promising field that can lead to improved effects on both the environment and the human health, as well as contribute

to a better social and economic development [4,5]. The wide use of Engineered nanomaterials in many different applications demonstrates a broad impact in society and that the Engineered nanomaterials affect many people. Despite these great benefits there is a concern that Engineered nanomaterials could have a negative impact on health and environment, and there is a need for toxicological evaluations of these materials [5]. Since Engineered nanomaterials are of the same magnitude as many intracellular machineries, like proteins, enzymes etc., it is of great importance to sort out if they interact with biological systems [6].

The development of nanotechnology and material science is expanding enormously, but only 5% of the invested resources have been dedicated to research to understand the Engineered nanomaterials effects on environmental and human health and thus increase the awareness regarding nanosafety issues [7]. It is important that the environmental effects and the health effects from these Engineered nanomaterials, if any, are well characterized and known in advance, a large production and consuming of Engineered nanomaterials are available to the common man.

An important part of nanosafety is the physicochemical characterization of the material to be studied. It is preferable to perform the physicochemical characterization of the material in all surrounding matrices: in the dry state, in the buffer- or medium-solution, if used, and finally also in the biological matrices it comes in contact with e.g. lung lining fluid. The physicochemical properties, of the nanomaterials, that are of relevance to determine are: size and surface area, shape, crystal structure, chemical composition, solubility, agglomeration state, surface charge, surface energy, and surface coatings [3, 8].

A mass of small sized particles have increased surface area compared to the same mass of larger sized particles. An increased surface area enhances the possibilities for interaction with the surrounding milieu [8] and because a large percentage of the atoms lies on the surface of nanomaterials, there is increased reactive potential [9]. A consequence of increased surface reactivity in the nanoscale for some material is the enhanced capability to generate reactive oxygen species (reactive oxygen species) within biological systems [5, 8]. Oxidative stress is a result of increased levels of reactive oxygen species, this could be due to surface activity of nanomaterial or intracellular process from phagocytic cells [5]. Normally, reactive oxygen species is a result from vital processes, such as photosynthesis, respiration, and cell signalling, in which superoxide, hydrogen peroxide (hydrogen peroxide), and hydroxyl radicals (hydroxyl radical) are formed. The body has through evolution developed systems to rapidly take care of these reactive species, by means of antioxidants, such as glutathione, vitamin C and E, uric acid, and beta-carotene, and also by means of enzymatic systems, such as superoxide dismutase (superoxide dismutase), catalase, and peroxidases [10, 11]. An excessive production of reactive oxygen species generates an imbalance between oxidants and antioxidants that may harm the biological system due to interaction with vital macromolecules, that might affect the functions of the macromolecules [5].

Nanomaterials can be produced in different shapes and forms, such as particles, wires, sheets, rods, fiber etc. It is well known that the fiber structure of asbestos induce frustrated phagocytosis of macrophages, since they are not able to internalize the long

fiber structure. This frustrated phagocytosis further results in the release of oxidants and mediator signals to the surrounding milieu [12]. Occupational exposure to asbestos over a long time is known to induce diseases like pulmonary fibrosis [13]. The structure similarities of asbestos and fiber nanomaterials cause concerns for their possible pathological capabilities in the long term. Additionally, the crystal structure of the nanomaterials has different properties that e.g. affect the ability of the nanomaterial to be internalized into cells. It has been shown that the two Titanium dioxide crystal structures, anatase and rutile, have different abilities to be internalized into the cells due to the intrinsic physiochemical forces between their agglomerates; anatase forms soft agglomerates that are loosely bonded and consequently can be internalized more easily, whereas rutile forms harder agglomerates that do not internalize to the same extent [14].

The general discussion surrounding nanotechnologies and their impact on health and the environment emphasizes the need for careful study and assessment of risks associated with the use of nanomaterials. While nanotechnologies have great potential to improve quality of life and advance various fields such as medicine, energy, and electronics, it is also important to consider their potential negative consequences.

Research conducted within the scope of this thesis underscores that the effects of nanoparticles on health can be complex and vary depending on various factors, including dosage, material type, mode of exposure, and individual characteristics.

Further research in this direction is crucial for understanding the mechanisms of nanoparticle impact on health and for developing effective strategies to mitigate potential hazards. Additionally, the inclusion of sensitive populations and genetically susceptible individuals in research and the development of safety measures are critically important for ensuring the guaranteed safety of nanomaterials' utilization in industry and scientific investigations.

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HISTORY OF FASHION

The aim of this study was to investigate the fashion of different eras. The research is based on data from different sources of information.

Fashion is the temporary predominance of a particular style in a particular sphere of life or cultural context. Its history goes back to the depths of human civilization, where clothing was used not only to protect against the elements, but also to demonstrate social status, personality and aesthetic preferences.

In the modern world, the concept of "fashion" has become an integral part of our daily life. Fashion allows people to express their individuality and create their own unique style. The choice of clothes and accessories can reflect their preferences, values and personality. Also, clothes can be an indicator of social status and prestige. Certain brands and designer items can indicate high social status and material wealth. Clothing can affect self-esteem, perception and interaction between people. So, let's look at the history of fashion itself.

Early eras. In ancient Egypt, clothing was made of linen and cotton, and had a clear class hierarchy. The pharaohs and nobles wore exquisite robes of white linen, decorated with gold and jewelry. Simple people wore simple clothes made of coarse

cotton. In ancient Greece and Rome, clothes were draped from rectangular pieces of fabric. The Greek tunic and the Roman toga became iconic elements of that time.

The Middle Ages. In the Middle Ages, fashion was subject to religious and feudal norms. The nobleman's costume was lush and multi-layered, decorated with fur, coats of arms and embroidery. Common people wore practical clothes made of wool and linen.

Renaissance and Baroque. The Renaissance and Baroque eras were marked by the flourishing of fashion. Clothes become more refined and elegant, emphasizing the beauty of the human body. Corsets, wigs and other iconic elements appear.

18-19 centuries. In the 18th and 19th centuries, fashion became more dynamic and changeable. Fashion magazines appear that make fashion trends available to a wider public. At this time, such styles as Rococo, Empire, Biedermeier, crinoline were formed.

20th century. The 20th century was revolutionary for fashion. Two world wars, the emancipation of women, the development of chemical fibers and new technologies led to drastic changes in clothing. Such styles as modern, art deco, new look, mini skirt, hippie, disco, grunge appear.

21st century. The 21st century is characterized by globalization and eclecticism in fashion. New subcultures and fashion trends are emerging, which are constantly changing. Fashion is becoming more accessible and democratic, because people have the opportunity to create their own unique style.

Conclusion. Studying the history of fashion, several important conclusions can be drawn. First, fashion is an important component of culture and society, which reflects the cultural, social, economic and political trends of its time. It is constantly changing under the influence of various factors, such as innovations in technology, historical events and cultural exchanges between different peoples. Secondly, the history of fashion shows that it is dynamic and evolutionary. Fashion trends change over time, but often they also come back into fashion with new interpretations. This indicates a constant cycle and rethinking of styles and trends. In addition, the history of fashion demonstrates the importance of inclusivity and diversity. In fashion, there is an increasing emphasis on inclusion and representation of diverse populations diversity of cultural heritage. Inclusivity in fashion helps support diversity and appeal to a wider audience of consumers.

In general, the study of fashion history emphasizes its importance as a reflection cultural and social processes, and as a means of expressing individuality and creativity. Studying the history of fashion helps to better understand current trends and values in the field of fashion, and also contributes to its further development and improvement.

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THE MANUFACTURING PROCESS OF THE "COUPLING BODY" PART

The manufacturing process of the "Coupling body" part is an important component of the production of transmission systems and mechanisms, which requires special attention to productivity and production efficiency. Ensuring the reliability and quality of this part affects the functionality of the vehicles and machines where it is used. Increasing the productivity of this process can significantly improve the competitiveness of the enterprise, reduce costs and ensure high quality of production.

In modern conditions, production is becoming increasingly competitive. Businesses that are able to increase productivity and reduce production costs have an advantage in the market. Optimization of the manufacturing process of the "Coupling body" part will increase production efficiency and increase the competitiveness of the enterprise [1].

Increasing the productivity of the production of the coupling bodies will allow more efficient use of equipment, work with smaller stocks of raw materials and lower labour costs. Increasing productivity should not compromise the quality of production. It is important to maintain a high standard of quality of "Coupling body" parts. Considering the relevance of the work, we take into account the need to simultaneously increase productivity and maintain high quality standards.

In the modern world, attention to the ecological aspects of production is growing. Productivity improvements can also help reduce emissions and resource use, contributing to more sustainable production [2].

The purpose of the research is to find optimal ways to increase the productivity and quality of production of clutch housings, to ensure efficient use of resources and to become more competitive in the market of manufacturers of transmission systems and mechanisms.

By analyzing and optimizing the technological process, implementing automated systems and managing production quality, we have improved the efficiency and effectiveness of the production of coupling bodies. The study identified key factors that affect manufacturing productivity, including sequence of operations, automation and quality control. We have identified which aspects can be optimized to improve performance. The work provides specific recommendations to the manufacturer of "Coupling body" parts in order to improve its production. This includes optimizing the sequence of operations, implementing automated management and quality control systems, and improving the production management system. Our research opens up a wide range of opportunities for further research in the field of manufacturing and process optimization. Some aspects, such as the use of more sustainable materials or the development of energy-efficient technologies, may be the subject of further research.

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THE IMPACT OF THE AUTOMOTIVE ENVIRONMENT ON THE ENVIRONMENT AND METHODS OF IMPROVING THE ENVIRONMENTAL SAFETY OF CARS

The aim of this study was to investigate the problem of the state of the planet's ecology as a whole. As a result of the scientific and technological revolution, humanity suffers from excessive pollution of the environment: air, water and land resources with harmful substances. In particular, transport is not the last link that poses a real threat to the atmosphere in terms of pollution by emission gases and the formation of "holes" in the ozone layer of our planet.

Gas emissions from motor vehicles are very harmful to people and the environment. In recent years, the global vehicle fleet has increased significantly, reaching up to 28 million vehicles annually. This leads to serious air pollution, especially in places with high population density where emissions are concentrated. Car exhaust gases contain toxic components that remain in the atmosphere from ten days to six months, worsening air quality and human health [1].

The exhaust gases of internal combustion engines of cars contain more than 1200 toxic chemical compounds, most of which are various hydrocarbons. Because of this diversity and difficulty in identifying individual compounds, the most represented components or groups of components are usually accepted for consideration.

Sulfur compounds and nitrogen oxides emitted into the atmosphere with the exhaust gases of car internal combustion engines undergo chemical transformations, forming various acids and salts. Such substances return to earth in the form of "acid" rain. It has now been proven that acid precipitation causes significant damage to aquatic ecosystems, leads to the destruction of fauna, causes increased corrosion of metals and destruction of building structures.

Harmful substances contained in the exhaust gas emissions of internal combustion engines of cars that consume the bulk of oil refining products and some part of the processing of coal and gas have an extremely negative impact on human health.

The impact of road transport on the environmental situation in our country has reached a critical point – the indicators of air and environmental pollution exceed all permissible indicators of world norms and standards.

Analysis of statistical data and estimates of the negative impact of road transport on the environment and the population shows that emissions of pollutants by road transport on average per year amount to about 5.5 million tons (39% of total emissions in Ukraine). In large cities, air pollution from exhaust gases sometimes reaches up to 90% of the total level of pollution. In addition, more than 20% of ATMs are operated in excess of the established standards for the content of harmful substances in exhaust gases. More than 270 different harmful substances have been found in the exhaust gases emitted by cars, among which carcinogenic benzopyrenes, nitrogen oxides, lead, mercury, aldehydes, carbon and sulfur oxides, soot, carbohydrates and others are particularly safe [2].

In Ukraine, there is a program to reduce the negative impact of road transport on the environment, which states that motor transport is one of the largest polluters of atmospheric air and defines the main measures for the implementation of this program within ten years. The efficiency of safe use of fuel for humans and its impact on the environment is currently the main task of modern research in transport technologies.

The sources of emissions of harmful substances from internal combustion engines are: exhaust gases; crankcase gases, evaporation from power systems, uncontrolled spillage of operating materials on the ground.

The main components of the negative impact of road transport on the environment and human health at the present stage of development of the world production and operation of motor vehicles are:

- the activity of the bulk of road transport is concentrated in places with a high population;
- harmful emissions from cars are carried out in the lower, surface layers of the atmosphere, where the main human activity takes place;
- Exhaust gases from car engines contain highly concentrated toxic components, which are the main pollutants of the atmosphere [3].

Harmful emissions from road transport significantly depend on the mode of operation of the engine and the quality of the fuel used, on the serviceability of systems and mechanisms.

Toxic components of the polluted environment enter the human body by inhaling air and are absorbed into the bloodstream, affecting the respiratory tract and lungs. Carbon reduces the ability of blood to carry oxygen to tissues, contributes to the exacerbation of symptoms of cardiovascular diseases, and impairs breathing.

So, the daily operation of cars consists in the use of operating materials, petroleum products, natural gas, atmospheric air, and all this is accompanied by negative processes, namely: air pollution; Water; lands and soils; noise, electromagnetic and vibration effects; release of unpleasant odors into the atmosphere; release of toxic waste; thermal pollution.

The impact of road transport on the environment is manifested by: when cars are moving (especially in cities, at intersections); during maintenance; in the functioning of the infrastructure that ensures its operation.

The priority areas for improving the environmental safety of road transport are:

- various ways to reduce emissions of toxic components into the environment;
- constant increase in the amount of environmentally friendly materials in production and control over the use of materials with harmful substances in the construction of cars;
- timely maintenance and precise adjustment of the ignition and power supply system of internal combustion engines;
- reducing the harmful impact of toxic substances on the environment during operation due to the introduction of the latest systems for neutralizing harmful emissions;
- widespread use of liquefied natural gas, alternative fuels, new vehicles – electric vehicles;
- introduction of various additives and neutralizers into the fuel composition, which ensure its smokeless combustion;
- use of the latest ignition systems that contribute to the complete combustion of fuel;
- Improvement of the environment in Ukraine by meeting the requirements of environmental legislation [4].

Conclusions: Ukraine needs to actively work on improving the operation of motor vehicles and improving the quality of fuel for internal combustion engines in accordance with the regulatory framework. To improve the quality of atmospheric air, it is important to reduce emissions from road transport by 40% and prevent lead emissions, especially in cities, resort areas and large cities, in particular in Kyiv. It is necessary to give priority to passenger electric transport in large cities, with a consistent reduction in bus routes. It is also important to develop technologies and tools to assess and protect the environment from pollution in road transport enterprises.

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Session work № 6

CURRENT RESEARCH IN THE FIELD OF MEDICINE

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UNDERSTANDING THE DEVELOPMENT OF PHARMACEUTICAL SCIENCE IN UKRAINE

At the beginning of the 21st century, the World Health Organization (WHO) defined the strategic direction of healthcare development worldwide in three words: "Patient Focus". The strategic direction of healthcare development around the world is to focus all branches of medicine on the needs of the patient. This provision is enshrined in the documents of the World Health Organization (WHO) and underlies the Essential Medicines Action Program approved by the WHO Regional Office for Europe.

The term "pharmaceutical care" gained popularity in pharmacy circles in the 90s of the last century. The term was coined in the United States by Hepler & Stend, who defined "pharmaceutical care as the responsible provision of drug therapy to achieve certain outcomes that improve the patient's quality of life." The authors suggested that "pharmaceutical care involves a process by which the pharmacist collaborates with the patient and other health care professionals to develop, implement, and monitor a therapeutic plan that will promote specific therapeutic outcomes for the patient." This concept of the pharmacist's role was presented as a revolutionary strategy to make pharmacists responsible for the outcomes of pharmacotherapy, and to reorient clinical pharmacy from process to outcomes.

Pharmaceutical care has been recognized by pharmacists in the UK, including the Royal Pharmaceutical Society. It was incorporated into the professional principles of good clinical practice (GCP), despite discussions about its feasibility in practice. The use of the more traditional term "clinical pharmacy" was quickly replaced by the term "pharmaceutical care" to describe the work of a pharmacist in a hospital, although the specifics of the work have not changed radically. In the United Kingdom, clinical pharmacy reflects the pharmacist's participation in the work of the clinical team along

with other professionals to improve patient care with an emphasis on the use of medicines. The term pharmaceutical care as it is currently used in the UK is supported by the strict definition of Heppler and Stand, but when used, it implies a patient-centered approach to pharmacist practice.

Researchers Cotter and McNee look at pharmaceutical care in two ways: by providing pharmaceutical care directly and by providing advice to other health professionals. Pharmaceutical care is now a convenient shorthand term used by pharmacists to describe their practice.

The analysis of the development of professional training of pharmaceutical industry specialists in Ukraine has revealed an interrelated set of problems that need to be addressed: determining the vectors of appropriate changes in the development of pharmaceutical care; creating a new model of pharmaceutical care; substantiating the principles of pharmaceutical care management in rapidly changing socio-economic conditions; creating and maintaining an appropriate balance of interests of all stakeholders (pharmacy as a science, pharmaceutical education and pharmaceutical production); ensuring proper The detailed study of the situation in the pharmaceutical industry of Ukraine was initiated by seminars and congresses held by the World Health Organization (WHO) and the International Pharmaceutical Federation (IPF) at the regional and international levels since 1988. The general theme of such events is "The place and role of pharmacy in the health care system".

Global changes in the global healthcare system are reflected in the healthcare system of Ukraine and in the pharmaceutical sector. In Ukraine, Doctor of Chemical and Pharmaceutical Sciences, Professor, Academician of the National Academy of Sciences of Ukraine, Rector of the National University of Pharmacy V.P. Chernykh made a significant contribution to the development of pharmaceutical care. Under the leadership of Honored Worker of Science and Technology of Ukraine Ihor Albertovych Zupants, the Department of Clinical Pharmacology and Clinical Pharmacy at the National University of Pharmacy was established, which became the flagship of an innovative approach to training specialists for pharmacy.

Further active and practically significant development of pharmaceutical care in Ukraine is highly recommended.

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VACCINE: APPEARANCE AND FURTHER DEVELOPMENT

Vaccines are medicines that are used in medical practice for the purpose of the specific prevention of infectious diseases. They are the result of a complex and lengthy production process.

The first vaccination. On May 14, 1796, an English doctor and a researcher, Edward Jenner (1749-1823) conducted the first procedure, which subsequently revolutionized medicine, opening a new preventive direction. We are talking about vaccination against smallpox, which tens of thousands of years ruthlessly taking millions of lives. The village doctor Jenner noticed that peasants who work with cows infected with cowpox do not get sick with dangerous smallpox. Therefore, for the prevention of smallpox, he came up with the idea of introducing into the human body a safe vaccinia virus, to which people quickly develop immunity that protects against smallpox. It was on May 14, 1796 that Jenner instilled cowpox in the boy and proved that he became immune to smallpox. It was from the Latin name of the disease "cowpox" (in Latin - variole vaccine) that the name "vaccine" came from, and in Latin vaccinus means "cow" (from the word "vacca" - "cow").

Research stage

1. Vaccine development and production

A stage in the vaccine development process designed to identify natural or synthetic antigens that can help prevent disease or facilitate the treatment of an infectious disease. Such antigens can include both attenuated strains of the corresponding virus and individual parts thereof.

2. Preclinical studies

At this stage, a candidate vaccine manufactureres typically investigate tissue or cell culture systems and conduct animal studies to determine whether the vaccine

candidate will elicit an immune response. Many vaccine candidates do not go to the next stages of development, because they do not meet the established criteria or are generally harmful to experimental animals.

I phase. The candidate vaccine is administered to a small group of volunteers (less than 100 people) in order to determine whether the candidate vaccine is safe and obtain the first data on adverse reactions. This phase is carried out on as healthy people as possible in order to exclude the possible influence of other factors.

II phase. The candidate vaccine is administered to hundreds of people. The purpose of this phase is to obtain information on safety, immunogenicity, immunization schedule and dose value.

III phase. Thousands or tens of thousands of people, different target groups, may be involved in this phase of the study. The objective of this phase is to continue to investigate the safety (rare adverse reactions sometimes do not appear in smaller groups) and efficacy of the candidate vaccine. The minimum number of participants for this phase is 3000 people. As for COVID-19 vaccines, at the present stage of vaccine development, many more people are attracted to this phase, because first of all, it is necessary to vaccinate people with comorbidities and in very large quantities. And so the number of people in Phase 3 is many times greater to maximally identify rare adverse reactions and guarantee the safety and efficacy of vaccinated people

3. *Review of vaccine materials in the NRA for the purpose of its registration and approval of regulatory documents*

If the vaccine has passed all three phases of the clinical study, the candidate vaccine developer submits an application with the appropriate package of documents for obtaining a marketing authorization (license) to the National Regulatory Authority.

4. *Vaccine production*

All stages of the vaccine manufacturing process, testing methods, reagents, industry standard samples must meet the standards defined by Good Manufacturing Practice (GMP) requirements. These strict quality requirements include: specific pharmaceutical quality systems, quality assurance measures and procedures, quality inspection at every stage of production, production processes that can allow to guarantee identification, sterility, batch-to-batch repeatability, vaccine efficacy and safety.

The production of vaccines involves numerous risks and problems, primarily due to the nature of such drugs. Measures to ensure the quality of vaccines must be carried out throughout the production process, including cold chain control from manufacturer to consumer. The creation of any new enterprise is worthwhile, and necessitates investments both in the construction of premises and the establishment of the production process itself (the acquisition or scientific development of modern technology), the training of qualified personnel. In addition, it is necessary to take into account that to start production it is necessary to have production strains (antigens) and carry out their constant support and control.

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ANALYSIS OF THE SYSTEM OF MEASURES FOR THE PREVENTION OF ADDICTIVE BEHAVIOR IN ADOLESCENTS

Abstract. The process of computerization is gaining momentum in modern world. As a form of telecommunications, computer networks are a fundamentally new layer of social reality. The huge flow of information mostly unnecessary and sometimes harmful, makes anxious even an adult, when adolescents who are not resistant to various irritations suffer more. The article analyzes the essence of the "computer addiction" notion, its relationship with addictive behavior, describes its types and stages of formation, highlights the research of modern scientists from different positions on computer addiction as a type of addictive behavior.

Key words: computer addiction, adolescents, computer addiction, health, addictive behavior.

The relevance of the problem: The paper deals with the theoretical foundations of the problem of computer addiction of adolescents: causes, signs and consequences. The peculiarities of measures to prevent computer addiction among adolescents are revealed. A project on the prevention of computer addiction among adolescents with the participation of medical professionals has been developed. An empirical study of the level of computer addiction among adolescents and the form of their leisure time is carried out.

The purpose of the study: is to theoretically substantiate and experimentally test the socio-pedagogical conditions of primary prevention of computer addiction among adolescents.

The object of the study is the prevention of computer addiction in minors.

The subject of the study is the conditions of primary prevention of computer addiction in adolescents.

To achieve this goal, the following research objectives were identified:

1. Identify the main approaches to the prevention of computer addiction in adolescents.

2. Identify, substantiate and experimentally test a system of measures for the primary prevention of adolescent computer addiction.

The following research methods were used to solve the tasks: theoretical: analysis, synthesis of pedagogical, psychological, sociological, methodological literature in order to clarify the classifications of addictions, clarify the essence of the concept of "adolescent computer addiction" and determine its typical characteristics, the main mechanisms of computer addiction formation and substantiation of socio-pedagogical conditions for its prevention, development of criteria for assessing adolescent computer addiction; comparison, classification and generalisation of the results of the experiment; empirical: pedagogical observation (direct, indirect) of the behaviour and emotional states of adolescents during and after playing on the computer; surveys (questionnaires, interviews) of adolescents and their parents; psychodiagnostic methods for determining the levels of computer addiction in adolescents; pedagogical experiment (stating, formative, control stages) to test the socio-pedagogical conditions of primary prevention of computer addiction in adolescents. mathematical statistics: generalisation of empirical data in the process of comparing the results of the formative and formative stages of the study.

Results and discussion: Today's pace of computerization exceeds that of all other industries. No organization or institution in the world can do without computers and computer networks. Computers have rapidly penetrated into human life, and we often do not realize that we are beginning to depend on them to a large extent." [1; p. 114]

A significant role in modern prevention work is played by preventive interventions (targeted impact on the target prevention group in order to change its attitude to the problem and overcome the factors that lead to the problem), the task of which is to change incorrect and form stable adequate attitudes towards the problem and behavior, to develop the skills and abilities necessary to prevent and overcome problems, as well as to meet their own needs in a safe and effective way.

According to the WHO, all preventive actions are differentiated into primary, secondary, and tertiary. The primary ones are those that are carried out in a healthy environment, their task being to prevent the occurrence of a certain negative phenomenon and problems associated with it in the peer environment [2, p.33].

Based on the analysis of literature sources, the main approaches to preventive work and the most common models of prevention of negative phenomena in the youth environment, as well as the structure of preventive actions are identified .

The article presents the scientific substantiation of social conditions and methods of primary prevention of computer addiction in adolescents, determines its effectiveness; describes the course of the formative experiment and shows the dynamics of the levels of computer addiction in adolescents before and after the experiment. In order to conduct the formative experiment, we developed an experimental methodology that conceptually corresponds to the theoretical provisions of the qualification work. It is based on the content, forms and methods of preventive work focused on the development of adolescents' skills and abilities necessary to prevent and overcome computer addiction, as well as to meet the need for new experiences, positive emotions, and overcoming discomfort in an alternative way.

The experimental work with adolescents was aimed at: raising their awareness of the possibility of using computers, objective modern knowledge about the risks of computer influence on health, behavior, and mood; reducing their aggressiveness and anxiety; forming a responsible attitude to their own health; motivating them to further use the acquired knowledge and skills in real life [3, p.6]. A component-by-component approach was used to solve the tasks. The cognitive component was implemented through the acquisition of knowledge by adolescents about the impact of computers on human health, the features of computer games and their potential impact on personality development, and the possibilities of using computers in life. The perception and analysis of the information received allowed adolescents to expand their own experience and compare it with others. Preventive work was carried out mainly during thematic educational hours, training sessions, and computer science lessons.

At the ascertaining stage, the experiment involved first-year college students. The empirical data obtained as a result of the ascertaining stage allowed not only to identify the state of the problem of computer addiction among adolescents, but also to identify groups that were later involved in the formative stage of the experiment [5, p.14]. The main purpose of the formative stage was to test, including statistically, the reliability of the developed conditions for the possibility of reducing the development of computer addiction.

The experiment involved 131 students, of whom two groups were formed. 62 students of the control group and 69 students of the experimental group. To ensure more accurate mathematical processing of statistical information based on the results of tests and creative tasks, each respondent was given a score. Adolescents who were classified as being at high risk of developing computer addiction received 41-50 points, medium risk - 31-40 points, and low risk - 21-30 points. Thus, a discrete statistical distribution was constructed for the student sample.

After the implementation of the measures developed by us to prevent computer addiction, the indicators of addiction levels in the experimental group changed, and in the control group they remained almost unchanged.

Thus, 30.8% of CG adolescents and 51% of EG adolescents are at a low level, 55.8% of CG students and 44.9% of EG students are at an average level, and 13.4% of CG students and 4.1% of EG students are at a high level.

In addition, comparing the results in the control group, we see that 26.9% of adolescents were at the low level before the experiment, and 30.8% after; at the

medium level - up to 55.7%, after - 55.8% of students; at the high level - up to 17.3%, after - 13.4%. Whereas in the experimental group, 28.6% of adolescents had low levels before the experiment and 51% afterwards; 53.1% of students had medium levels before and 44.9% afterwards; 18.4% before and 4.1% afterwards.

The indicators of low and high levels in the experimental group have changed significantly.

Thus, the problem of computer addiction is an urgent problem among the studied adolescents, the solution of which is possible, as the results of the work show, in particular through the implementation of comprehensive preventive measures with the participation of medical professionals, because only a qualified medical professional is able to detect the symptoms of computer addiction in adolescents in time and provide the necessary assistance to overcome it.

To achieve the goal of our work, a special research program was developed, stages and methods of scientific research were determined. To carry out the experimental part of the research program, a diagnostic survey was conducted among adolescents in Zhytomyr and the region.

Summarizing the indicators, we obtained the basis for differentiating the levels of computer addiction among adolescents: low, medium and high.

After the implementation of the measures developed by us with the participation of medical workers in the experimental group, the indicators of computer addiction levels changed, and in the control group they remained almost unchanged.

In addition, comparing the results in the control group, we see that 26.9% of students were at a low level before the experiment, and 30.8% after; at an average level - up to 55.7%, after - 55.8% of students; at a high level - before - 17.3%, after - 13.4%. Whereas in the experimental group, at the low level, there were 28.6% of students before the experiment, and 51% after; at the medium level, up to 53.1%, after - 44.9% of students; at the high level, before - 18.4%, after - 4.1%.

The low and high levels in the experimental group changed significantly.

The study does not exhaust all aspects of computer addiction prevention. It remains relevant to study the solution of this problem at the level of other age groups, enriching the content of adolescents' leisure time, and finding ways to prevent other types of deviant behavior among adolescents. Nevertheless, it can be concluded that the implemented program for the prevention of computer addiction in adolescents with the participation of medical professionals has a positive result.

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CLINICAL METHODS OF STUDYING CARDIOVASCULAR ACTIVITY

Achievements of modern medicine, scientific and technical progress have significantly expanded the possibilities of diagnosis and treatment of diseases of the cardiovascular system. Accurate and objective diagnostics make it possible to clearly diagnose functional and structural disorders of various organs and systems.

Cardiovascular system research methods are divided into invasive and non-invasive. Functional methods include studies of central and peripheral blood circulation, which include sphygmography, central and peripheral pulse curves, arterial oscillography and tachooscillography, rheography, methods of functional research of the arterial and venous system. The methods of registration and calculation of hemodynamic parameters include phonocardiography, phase analysis of cardiac activity, graphical methods of studying the mechanical activity of the heart, and ultrasound examinations of the heart.

Registration and evaluation of electrical properties of the heart are carried out using the methods of electrocardiography and vectorcardiography. Methods of X-ray research are radiography and radioscopy, tomography, angiocardiology. Radionuclide research methods for diseases of the cardiovascular system are radionuclide angiocardiology, radionuclide aortography, radionuclide phlebography [2, p.86].

Electrocardiography is a method of graphic registration of electrical phenomena that occur in the heart muscle during its activity. The curve that shows the electrical activity of the heart is called an electrocardiogram. Therefore, an electrocardiogram is a record of the changes in potential differences that the heart undergoes during its

excitation. Electrocardiography is one of the main methods of studying the heart and diagnosing cardiovascular diseases. It is indispensable for diagnosing rhythm and conduction disorders, hypertrophies, and ischemic heart disease. This method makes it possible to diagnose with great accuracy the localization of focal changes in the myocardium, their distribution, depth and time of appearance; makes it possible to detect dystrophic and sclerotic processes in the myocardium, disorders of electrolyte metabolism that occur under the influence of various toxic substances. Electrocardiography is widely used for functional examination of the cardiovascular system, and the combination of electrocardiographic examination with functional tests helps to detect hidden coronary *artery disease*, variable rhythm disturbances, and to carry out a differential diagnosis between functional and organic disorders of the heart. A standard electrocardiogram captures the heart's activity in a short period of time, that is, captures only a few contractions of the myocardium, depending on the cardiograph used. Holter electrocardiogram monitoring is used for a more detailed analysis of information about the state of the patient's heart over a much longer period of time [1; 2; 6].

Holter monitoring of the electrocardiogram is a registration of heart activity by long-term recording of the electrocardiogram in the conditions of the patient's activity, with further analysis of the obtained data. Holter monitoring is widely used to diagnose coronary artery disease, heart rhythm and conduction disorders, and evaluate the effectiveness of treatment of cardiovascular diseases. This examination makes it possible to simultaneously register several leads, which increases the informativeness of the method in the diagnosis of coronary artery disease and heart rhythm disorders. Increasing the duration of the study makes it possible to assess the conditions for the occurrence of heart rhythm disorders, their features. A device for Holter monitoring of an electrocardiogram provides continuous recording of an electrocardiogram under conditions of daily heart activity, playback of recorded signals, processing, and interpretation of the obtained data. Recording information is possible in analog or digital mode of information registration. Indications for Holter monitoring of the electrocardiogram are assessment of symptoms associated with heart rhythm and conduction disturbances; risk stratification in patients with structural heart diseases without symptoms of arrhythmia; evaluation of the effectiveness of treatment of heart arrhythmia; assessment of functions of implanted devices; diagnosis and evaluation of the effectiveness of treatment of myocardial ischemia [3, p.122].

Echocardiography is a non-invasive method of examining the heart and major blood vessels using ultrasound, which allows to visualize anatomical features and assess the function of the heart and major blood vessels. Ultrasound with a frequency of 1-1.5 MHz is used in medicine. The possibilities of ultrasound examination of the heart make it possible to quickly diagnose most heart diseases at the initial stage of development. This method of examination is not only the most informative, but also the safest, does not cause any complications or side effects. Echocardiography is one of the most powerful diagnostic and monitoring tools and can be used to determine and monitor changes in cardiac output, to determine disturbances in intracardiac hemodynamics and coronary perfusion, to ensure standardization of analytical

information relevant to the diagnosis. The practical use of echocardiography is provided in patients with acute cardiovascular conditions, acute heart failure, suspected cardiac tamponade, acute valvular function disorders, including endocarditis, acute pathology of the ascending aorta, and complications after invasive interventions. Types of echocardiographic imaging are transthoracic echocardiography (a common initial imaging technique in the assessment of acute cardiovascular conditions); transesophageal echocardiography (especially necessary in cases of acute aortic syndromes, acute valvular regurgitation, acute dysfunction of valve prostheses, aortic dissection and atrial fibrillation to rule out thrombosis); contrast-enhanced echocardiography (it is useful for evaluating the systolic function of the left ventricle in patients with poor visualization of the endocardial borders of the left ventricle, especially in cases of pseudoaneurysms and intracardiac volume formations).

Angiocardiography is an X-ray method of examining the condition of the heart and major blood vessels. The technique is used to diagnose congenital defects of the heart and great vessels (to detect defects of the interatrial or interventricular septum, aorta coarctation, overriding aorta, non-occlusion of the aortic duct, etc.). During the examination, a radiopaque substance, usually containing iodine (cardiocontrast, yoduron, pielozil, diodon, diodrast) is injected transvascularily into the heart chamber through a catheter. The points of contrast agent administration are the artery for the left chambers and the vein for the right chambers of the heart. From there, it spreads through the major blood vessels with the flow of blood. This is captured through a series of images that allow determining the path of contrast spread through the blood vessels. Modern angiocardiography is performed using digital technologies (computer angiocardiography). Angiocardiography can also be used to diagnose congenital heart defects in atrial septal defects, to determine myocardial function in ischemic heart disease, in case of valve dysfunction, and other acquired or congenital heart pathologies [4, p.87].

The study of central and peripheral blood circulation (sphygmography) is a non-invasive method of studying cardiovascular activity, which is based on the graphic registration of the oscillations of the arterial walls during the passage of a pulse wave. Due to the fact that blood does not flow from the heart in a continuous stream, but is ejected in portions, the flow of blood through the blood vessels has a pulsating character. The elasticity of the walls of the aorta and arteries leads to the fact that at the moment of systole, the blood that is pushed out of the left ventricle stretches the walls of the aorta, creating systolic pressure. At this moment, such areas of the circulatory system receive more blood than flows out of them to the peripheral vessels. During diastole, deformed vessels push blood to peripheral areas and the pressure in the aorta drops to a minimum. The potential energy of the deformation of the vessel walls is transformed into the kinetic energy of the blood flow. At the moment of systole, a wave of increased pressure is formed and propagates in the aorta, which is called a pulse wave. The speed of its spread does not coincide with the actual speed of blood, but much exceeds it. Formation of blood pressure, changes in the rate of heart contractions, stroke volume of blood, elasticity and tone of the arterial walls are reflected in the pulse curves – sphygmograms. Sphygmograms can differ depending on the anatomical

localization of the source, physical properties of the sensors, and physical and mathematical characteristics. The pulse curves recorded on the arteries closer to the heart are called sphygmograms of the central pulse (for the arch of the aorta, subclavian and carotid arteries). The sphygmogram of the peripheral pulse determines the features of the propagation of the pulse wave in the peripheral arteries. Also, with the help of sphygmography, the contractile properties of the myocardium, the dynamics of force and the speed of heart contractions are studied, arterial tone and the state of local blood flow are assessed.

Magnetic resonance imaging of the heart is currently the most accurate diagnostic method, which most accurately reproduces the structure of the heart and its anatomical structure, allows to assess its function, as well as pathological changes.

Magnetic resonance imaging is a non-invasive test that uses a magnetic field and radio frequency waves to create detailed pictures of the heart without using ionizing (X-ray) radiation. The indication for magnetic resonance imaging of the heart is the detection and visualization of congenital disorders of the heart and major blood vessels; differentiation of idiopathic and ischemic cardiomyopathy; detection of fibrous changes in hypertrophic cardiomyopathy; to visualize specific signs of inflammatory changes in the myocardium; differentiation of acute and transferred myocardial infarction; the best method for diagnosing arrhythmogenic cardiomyopathy of the right ventricle with assessment of fibrosis; for the differentiation of hibernation and stunning of the myocardium in order to determine the tactics of treatment; detection of primary and secondary formations of the heart; assessment of localization and extracardiac spread, analysis of vascularization of tumors; to detect diseases of heart valves and aorta. In most cases, magnetic resonance imaging of the heart is performed with contrast, so the contraindications refer to general contraindications to contrast administration [5].

Rheography is a diagnostic method that examines blood flow in organs and biotissues. The essence of rheography is the graphic registration of changes in the electrical conductivity of the organ caused by pulse fluctuations of the blood current. Among all the structures of our body, blood has the highest electrical conductivity. The main indicators during the analysis of the rheographic curve are rheographic index (reflects the amount of total blood filling of the area under investigation); the amplitude of the initial section of the rheogram (characterizes the magnitude and speed of blood filling of the arterial bed); systolic-diastolic index (used to assess the state of venous outflow) [3, p.88].

The analyzed diagnostic methods are effectively used in clinical practice for the diagnosis of cardiovascular diseases, and the formation of an individual approach to their treatment will make it possible to reduce the activity of the disease and increase the effectiveness of therapy. The latest examination methods, innovative technologies, and the competence of specialists ensure the highest quality of diagnosis and help to avoid possible errors in maintaining health and a full-fledged lifestyle.

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