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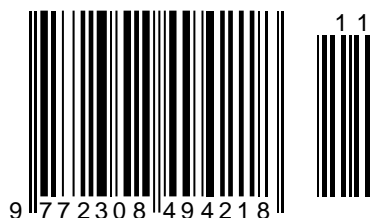
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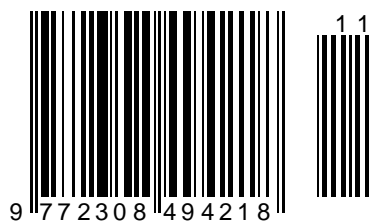
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## USE OF MODERN METHODS IN TEACHING FOREIGN LANGUAGES

**Abstract:** In today's fast-paced world, science and technology are gaining momentum. Progress in all areas is moving forward. In particular, science has undergone great changes and significant progress. Providing students with every subject using innovative teaching methods is one of the basic requirements of modern education. In particular, after the adoption of the Decree of the First President of the Republic of Uzbekistan dated 2012, attention to teaching and learning foreign languages has increased in our country. A new stage in the teaching of foreign languages has begun in our country.

**Key words:** Latin, method, technology, grammar, teaching, translation.

**Language:** Russian

**Citation:** Israilova, M. N., & Yuldasheva, D. Y. (2021). Use of modern methods in teaching foreign languages. *ISJ Theoretical & Applied Science, 11 (103)*, 901-903.

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## ИСПОЛЬЗОВАНИЕ СОВРЕМЕННЫХ МЕТОДОВ ПРИ ОБУЧЕНИЯ ИНОСТРАННЫМ ЯЗЫКАМ

**Аннотация:** В современном быстро меняющемся мире наука и технологии набирают обороты. Прогресс во всех областях идет вперед. В частности, большие изменения и значительный прогресс претерпела наука. Предоставление студентам каждого предмета с использованием инновационных методов обучения является одним из основных требований современного образования. В частности, после принятия Указа Первого Президента Республики Узбекистан от 2012 года в нашей стране возросло внимание к преподаванию и изучению иностранных языков. В нашей стране начался новый этап в преподавании иностранных языков.

**Ключевые слова:** латинский язык, метод, технология, грамматика, обучение, перевод.

### Введение

При обучении иностранным языкам требуется использование передовых педагогических технологий, интерактивных, инновационных и коммуникативных средств массовой информации. В нашей стране разработаны новые методики и требования к обучению иностранным языкам в соответствии с Европейскими рамочными рекомендациями (CEFR). Созданы учебники для учащихся средних школ и профессиональных колледжей. В

соответствии с этими требованиями классы оснащены трибунами и новыми информационно-коммуникационными технологиями. Потребность в изучении иностранных языков также растет день ото дня. Иностранный язык делится на четыре аспекта (чтение, аудирование и понимание), и каждому из них дается определенное понимание и навыки. [2. с 49]

В настоящее время очень важно образование в вузе. Современный мир стремительно меняется день ото дня и ставит систему высшего

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образования перед множеством проблем. Следовательно, требуется обучение более энергичных, вдумчивых людей в междисциплинарных областях [1. с 212]. Таким образом, исследования и поиск полезных и эффективных методов преподавания и обучения являются одной из важнейших потребностей образовательных систем [3. с 144]; преподаватели играют определяющую роль в обучении таких людей в указанной области [4. с 316]. Университет - это место, где появляются новые идеи; корни поражают и становятся высокими и прочными. Это уникальное пространство, которое охватывает всю вселенную знаний. Это место, где творческие умы сходятся, взаимодействуют друг с другом и создают видения новых реальностей. Установленные представления об истине оспариваются в погоне за знанием. Помощь опытных учителей может быть очень полезной и эффективной для выполнения всего этого.

Прямой метод обучения, который иногда называют естественным методом, который часто (но не исключительно) используется при обучении иностранным языкам, воздерживается от использования родного языка учащихся и использует только изучаемый язык. Он был основан в Англии примерно в 1900 году и контрастирует с методом грамматического перевода и другими традиционными подходами, а также с двуязычным методом К.Д. Додсона. Он был принят ключевыми международными языковыми школами, такими как Berlitz и In lingual, в 1970-х годах, а также многими языковыми отделами Института дипломатической службы Государственного департамента США в 2012 году.

Метод грамматики-перевода - это метод обучения иностранным языкам, производный от классического (иногда называемого традиционным) метода обучения греческому и латинскому языкам. На уроках грамматики и перевода учащиеся изучают грамматические правила, а затем применяют их, переводя предложения с целевого языка на родной. От продвинутых студентов может потребоваться дословный перевод целых текстов. Этот метод преследует две основные цели: дать учащимся возможность читать и переводить литературу, написанную на исходном языке, и способствовать общему интеллектуальному развитию учащихся. Это произошло из практики преподавания латыни; в начале 1500-х студенты изучали латынь для общения, но после того, как язык вымер, его стали изучать исключительно как академическую дисциплину. Когда в XIX веке учителя начали преподавать другие иностранные языки, они использовали тот же подход, основанный на переводе, что и при обучении латыни. Метод подвергался критике за его недостатки. [5. с 267]

Аудиолингвистический метод, армейский метод или новый ключ, - это стиль обучения, используемый при обучении иностранным языкам. Он основан на бихевиористской теории, которая постулирует, что определенные черты живых существ, и в данном случае людей, можно тренировать с помощью системы подкрепления. Правильное использование черты получит положительную обратную связь, а неправильное использование этой черты - отрицательную. Этот подход к изучению языка был похож на другой, более ранний метод, названный прямым методом. Подобно прямому методу, аудиолингвистический метод рекомендует обучать студентов языку напрямую, без использования их родного языка для объяснения новых слов или грамматики на изучаемом языке. Однако, в отличие от прямого метода, аудиолингвистический метод не фокусируется на обучении лексике. Скорее, учитель обучает студентов использованию грамматики. [6. с 197]

Структурный подход. Этот метод рассматривает язык как комплекс грамматических правил, которые необходимо изучать по одному в установленном порядке. Так, например, глагол «быть» вводится и практикуется перед продолжением настоящего времени, в котором «быть» используется как вспомогательное средство.

Суггестопедия - метод обучения, разработанный болгарским психотерапевтом Георгием Лозановым. Используется в основном для изучения иностранных языков. Эта теория применяла положительное предположение в обучении, когда она была разработана в 1970-х годах. Однако по мере совершенствования метода он больше фокусировался на «десуггестивном обучении», и теперь его часто называют «десуггестопедией». Суггестопедия - это набор слов "suggestion" and "pedagogy". [7. с 423] Распространенное заблуждение - связывать «внушение» с «гипнозом». Однако Лозанов имел в виду предложение или предложение, делая упор на выбор студента.

Коммуникативное обучение языку (CLT). Основное внимание в этом методе уделяется тому, чтобы позволить учащемуся эффективно и надлежащим образом общаться в различных ситуациях, в которых он может оказаться. Содержание курсов CLT - это такие функции, как приглашение, предложение, жалоба или такие понятия, как выражение времени, количество, местонахождение.

Тихий путь. Этот метод так называется потому, что цель учителя - сказать как можно меньше, чтобы ученик мог контролировать то, что он хочет сказать. Родной язык не используется.

Изучение языков в сообществе. В этом методе делается попытка установить прочные

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личные связи между учителем и учеником, чтобы не было препятствий для обучения. На родном языке много разговоров, которые учитель переводит для повторения учеником.

Погружение. Это в значительной степени соответствует ситуации в нашей школе. Студенты ESL погружаются в иностранный язык в течение всего учебного дня и, как ожидается, через целевой язык, будут изучать математику, естественные науки, гуманитарные науки и т. д.

Изучение языка на основе задач. Основное внимание в обучении уделяется выполнению задачи, которая сама по себе интересна учащимся. Учащиеся используют язык, который у них уже есть, для выполнения задания, и ошибки практически не исправляются (это преобладающий метод преподавания английского языка как иностранного в средней школе во Франкфуртской международной школе. недель. Например, по теме экологии учащиеся выполняют ряд задач, кульминацией которых является презентация плаката для остальной части класса. Задачи включают чтение, поиск в Интернете, прослушивание записанного на пленку материала, выбор важной лексики для обучения другие

студенты и т. д.) Естественный подход Этот подход, предложенный профессором С. Крашеном, подчеркивает сходство между изучением первого и второго языков. Нет исправления ошибок. [8. с 12] Обучение происходит, когда учащиеся знакомятся с языком, который им понятен или становится понятным.

Лексическая программа. Этот подход основан на компьютерном анализе языка, который определяет наиболее распространенные (и, следовательно, наиболее полезные) слова в языке и их различные варианты использования. Программа учит этим словам в широком порядке их частоты, и большое внимание уделяется использованию аутентичных материалов. [9. с 234]

Качество в аудитории основано на планировании уроков и курсов, понимании учащихся, управлении этим уроком, знании предмета, управлении ресурсами, оценке обучения, взаимодействию ИКТ, принятии на себя ответственности за профессиональное развитие, использовании инклюзивных практик, продвижении навыков XX века и понимании образовательного политика и практика.

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## IMAGE OF MENTALITY IN ABDULLA ORIPOV'S LYRICS

**Abstract:** This article describes the mood in Abdulla Aripov's lyrics and the classification of works depicting mood scenes. The parallel expression of emotion and idea is analyzed on the basis of examples of the correspondence of the emotion that arises in the heart of the lyrical protagonist to the idea that the poet is trying to convey.

**Key words:** Lyrical experience, metaphorical expression, parallel expression of emotion and idea, changing mood, philosophical idea, sound and word games, typical image, psyche and lyrical experience.

**Language:** English

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### Introduction

The study of Abdulla Aripov's lyrics, the biographical basis of his poems and the delineation of the boundaries of the interaction of creative personal experiences, reading and learning the spiritual forces in it, learning from life, philosophical conclusions are important in educating today's generation.

### Literature review

We can classify the works of the poet's lyrics in different ways, depicting the moods, the moments of mood born in an instant.

1. A metaphorical expression of lyrical experience;
2. Parallel expression of emotion and idea;
3. An expression of a changing mood;
4. An open poetic expression of a philosophical idea;
5. Expression with the help of sound and word games.

If we study the works on the basis of the first classification, in the poem "To the picture of the unknown girl" the comparison of hair to a sunflower, eyes to a morning star is an example of metaphorical expression of feelings of the lyrical hero.

*You are really beautiful  
Take your lips, red ...*

*The sunbul band in your hair,*

*Your eyes are the morning star.* [1, 26]

There are hundreds of such examples in the poet's lyrics.

*Your heavenly eyes sparkle,*

*Only then why sew?* [1, 32]

The poet often depicts the eyes in relation to the heavenly creature, the heavens.

The parallel expression of emotion and idea is the correspondence of the emotion which arises in the heart of the lyrical protagonist to the idea which the poet is to express, and we find examples of this. For example, "Autumn Landscapes" expresses the state of mind of a lover who has not been fulfilled, who has buried his lost love in his heart, who has met autumn in the spring of his life. Here the autumn treasures, the fiery leaves falling to the ground, are like a picture of a lover's heart yellowed with grief. In fact, the poet intended to write about the feelings of a heart devoid of love, but the sad, calm air of autumn caused a feeling of emptiness:

*The lust begins again in the fields,*

*In the gardens, leaves are burning.*

*My friends, these are not autumn leaves,*

*A fire pouring from my heart.* [1, 140]

The poet likens the pile of leaves in the autumn gardens to the flame in his heart. He actually goes on

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a field trip to find solace in his heart, to get used to the bitter test of fate, to find the strength to move forward again. But every situation in the autumn nature, the greenery facing the absence, reminds him of his pain. The dim lights on the branches of the trees were his thoughts, the sound of a voice, is the restless melodies of his heart. Just as the warmth of the autumn sun could not burn the body, so the flame of endless love is dim and colorless. It is no longer as warm as the autumn sun, it cannot burn.

The creative people are unique in nature. Simple as a child, as simple as a child, a genius saint, a strict teacher and a person of instinct. Therefore, they may have childish joys over trivial things and situations, perceive situations that seem normal to us as tragedies, and be dissatisfied with the content and forms of life we are accustomed. So there is instability in their mood. It is the same truth that moments either give wings to his psyche, or torment him. For example, the poem "Spring" is a canvas in which the expression of a changing mood is clearly visible. Initially, the poet describes the visit of spring to the country in the form of high spirits, gratitude of the aspiring soul. Every detail of the Renaissance is well described. Like an artist, the master draws the beauty of nature through poetic speech.

*Yard streams run ownerless,  
A field, a garden full of birdsong.  
Why not rejoice in your vision,  
Spring is long gone!* [1, 122]

The chirping of the birds, and even the wing of the insensitive rotten lizard tied to the green owl, and the rushing of the streams, are not out of his sight. Spring is the beauty that brings light to the weeping eyes and applause to the hearts. At such a moment, when the poet's heart is full of joy, he suddenly loses his temper. Spring involuntarily reminds him of the memory of his loved ones who passed away. Now the previous enthusiasm is replaced by sadness. Just like in music, dissonance begins:

*It's been ten months, it's a familiar cry.  
Shosh, which grief is still goes.*[1, 123]

While a scholar like Ghafur Ghulam is saddened by the poet's absence, the absence of a river-heart teacher like Maqsud Shaykhzoda completely extinguishes the mood at the beginning of the poem.

*a pure image, a deep fantasy has gone,  
No immortal name left in the world.*[1, 123]

The bright memory of his teacher, the memory of sorrow in his heart, makes appear tears in his eyes, but the absence of his mother turns this sorrow into a cry, tears into a bitter cry,

*Oh the spring, accept my age drops,  
Tell me if you went to my mother's head  
either?!*[1, 123]

The poet and the lyrical hero thus get rid of the painful sufferings that lie in his heart like the ice of winter. Just like spring, he pours outm refreshes his spirit. Coming out of the above state, he returns to the

bright moments again. Encourages friends to return to the season of light, to give thanks. The most interesting moment of the poet's psyche, is his changing mood, that he concludes the finale with the national anthem.

Philosophy is the leading motive in Abdulla Aripov's lyrics. The poet seeks meaning from life, an example from reality. Summarizing his observations, he clearly expresses his philosophical ideas:

*This world is like a market,  
Like the market, it makes sense.  
I never saw either of them,  
Someone who says my goods are bad.*[1, 231]

As he explores the nature of the world, he compares both its form and its meaning to the market. The professional role of the seller in the market is no stranger to the people of the world. Deception, deceit, and dishonesty are as relevant to the world as they are to the market.

*Listen, it will sound forever,  
Beggar's enemy will be Beggar.  
Until the two eat each other  
This world will end between them.* [1, 252]

Thus, the poet observes subject-object relations (market-world) and subject-subject relations (beggar - beggar) as he participates in a certain space and time as a third person observing the two sides of the material world. The open poetic expression of the poet's philosophical idea is a modern interpretation of moral concepts and categories.

There is also the ability in the poet's work to express new meanings using a variety of poetic arts, words and sounds, like true masters of the word. Take, for example, the poem The Philosophy of the Fox:

— *Master, one day the fox said to the fox,  
Why we laughter always laughing at us?*[1, 322]

The reciprocal rhyme of the words fox-laughter reinforces the meaning in the work.

*To you the flower, the blessing of this world,  
To you, O restless art.  
This is the encouragement of the heart to you,  
Slowly this is love for you.*

The creation of word play through repetition is one of the literary tools prevalent in ancient Eastern literature. It is mainly used in the form and harmony of form and meaning, and occurs in the repetition of certain words and sentences in the poem.

In the art of repetition, words and sentences are used in the same form, to express a semantic relationship in different meanings, and can sometimes be repeated by changing the position of the words.

The term takrir is originally an Arabic word that refers to the repetition of one or more words, sometimes a specific line. This art is also referred to in literature as repetitive or inevitable.

Many literary critics have commented on the types of this art and its place in the literary text. While in linguistics this condition is called a phenomenon of reduplication, in literature a wide attention is paid to

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the literary-aesthetic function and methodological features of repetitive words.

The issue of concreteness expression using contextual repetition of nouns and phrases has been specifically studied in linguistics, where repetition is seen as an element that forms a microtext.

The artistic means that provide art - alliteration, assonance and other poetic criteria - are the characteristics of each mature artist.

So repetition is not only an artistic but also a syntactic methodological concept. There are anaphoric, epiphoric, mixed (circular) types of repetition. Through the repeated use of words, the artist aims to articulate the idea he is trying to convey, to depict the mood and experience figuratively, and to have an aesthetic influence on the reader. He often actively uses alliteration, assonance, anaphora, epiphora.

*The rest of my life is in love, like hair,  
You turned my personality into a fiber, a fiber of hair.*

Here alliteration is formed from the repetition of the same consonant sounds used at the beginning of words. Different forms of sound repetition can also be found in Abdulla Aripov's lyrics. There are also many examples of anaphora being repeated without changing a word or combination at the beginning of anaphora verses. For example:

*One day I will write to you,  
One day your ugliness will spread to the world.  
One day your tears are on my paper,  
One day the poison is in my voice.  
One day I will cry out for your past,  
One day I will think of your fate. ("Mirror fragments")*

In the above six verses, the phrase "one day" has been an anaphora. The phrase change is exactly the same. This poem of the poet has a philosophical content and passes every real reality of life through the prism of the heart through the fragments of the mirror like a mosaic. Each word repetition is based on the contradiction of the poet's thoughts that come after the first word. At the culmination of the poem, the repetition of the phrase "one day" in the form of an anaphora strengthened the meaning, contradicted it, and served to show more deeply and clearly the essence of the idea that the poet wanted to express. In the six verses, completely opposite concepts are written, and the image of the six pieces in the mirror is given. Virtue-evil; tears (oppression) - poison (oppression); in the expression of the past-future the poet's skill in the use of words is manifested.

*Still need to praise someone,  
Still need to make gods,  
Still have to make prophets,  
Still need to make saints. ("Naked lines")*

The above quartet consists of bitter and open sarts. If the incompetence around the poet suffers from ignorance, he will be ten times more stressed than the

pain of praising such people, exalting them to heaven, entrusting the destiny of man and society. There is a mood here, similar to the popular saying, "The head sees the fallen." "Imagery makes Abdulla Aripov think about the first element of literature - language. He can polish words. In his works, words that are familiar to us seem to take on new meanings. At the same time, he worries about the richness of the Uzbek language. Sometimes he can express ideas in unique words. To do this, he effectively uses the richness of the Uzbek language".[4;44]

Saying still, the poet points out that he feels that such moments are coming.

*At first sight, I am satisfied with my friend,  
At first glance, it looks like no one is around.*

The poem "At first sight" is also a bright example of word play, anaphora. Even if we did not use the phrase "at first sight", the poet's intentions could be determined, and a good poem could be written. But as a result of this repetition, the musicality of the poem, the outline of the poet's psyche becomes more clearly visible.

*"At first sight, my backyard kids,  
At first sight, they are my broken tulips.*

At first sight the lyrical hero of the poem is a man surrounded by people, as if everybody are like a brothers to him, a wife. But at first sight, he is alone. He no longer wants to rely on his friends, but on his children. But they themselves are as hard as broken tulips that still need support.

*At first sight, I am happy in this world,  
At first sight, the whole world seems to me narrow.*

When you think about it, a person who has nothing short of anything, complete happiness. But even so, if the world thinks the same way, there are those who narrow their eyes to this bright world when they look at their lives in misery..

*At first sight, I reached my aim,  
At first sight, I left with open eyes.*

Here the poet and lyrical hero are exactly the same person. He acted like a creator, writing works that his heart commanded. But there are more not written things than he wrote, there are more not said things than he said.

*At first sight, I was running for glory,  
At first sight, I was just born. ("At first sight")*

The anaphoric sentence shaped the poetic speech in a unique way and had a positive effect on the compositional structure of the poem. The lyrical protagonist served to mark the sharp points of the speech. At the beginning of each verse, the poet repeats the phrase "at first sight" and uses the form of modern literary language and the living language of the people.

This repetition revealed a certain degree of expressiveness. That is, it expresses the rhythm of thought, reasoning, a coherent logical conclusion. At the same time, the meaning of the repetitive

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compound served to increase the sensitivity of the poet's emotional-expressive state.

*Man created at the turn of the century*

*If he will kill himself.*

*Is the world facing the end,*

*If prophecies come true or not. ("The Last War")*

"The content of the poem "The Last War" is written in the form of a protest against the unpeace and brotherhood in the world.

The anaphora in the poem is also loaded into the modal word in order to vividly depict the emotionally-expressive paint. When the poet thinks about human destiny, he presents three different situations. First, surprise, sorrow; the second is fear, confusion; the third is amazement, excitement.

The anaphora in the poem served not only as the decoration of artistic speech, the perfection of form, but also as a powerful expression of the meaning the poet was trying to convey.

"A true poet always brings a new interpretation of poetry to literature, and it reflects the aesthetic needs of the time. Abdulla Aripov also has a new understanding of such tasks, a new interpretation of the poet's place in society"[3;156]. There is another form of repetition, in which the repetition of the same word at the end of a verse is called an epiphora. Epiphora also serves to provide the musicality of

artistic speech, to strengthen the emphasis. It arises from the repetition of melodic words or the same sounds and affixes used in poetic works. Epiphora is the opposite of anaphora according to its use in verses. That is, anaphora is used at the beginning of the verse, epiphora at the end of the verse.

*If I'm happy - you're the reason,*

*If I think about it, you are the reason.*

*I don't want to die, no,*

*If I die suddenly, you are the cause.*

In this quatrain, the textual function of the epiphora unites around the experiences of the lyrical protagonist. In the poem, several states of the lyrical protagonist (subject) are shown in relation to the lover (object).

*When my soul laughs as the stars,*

*When my soul is full of stormy feelings,*

*Sometimes when my soul dies on poetry,*

*I asked Pahlavon Mahmud for help.*

"There is a clear example of the epiphora in the passage from the poem "At the tomb of Pahlavon Mahmud". "Looking at others with envy, not jealousy, is a sign of love for life. He who loves life, is grateful for its blessings, and acknowledges it, longs for the good of those around him, and strives for good deeds. Listening to Abdulla Aripov's poems, one is filled with a sense of nostalgia".[2;46]

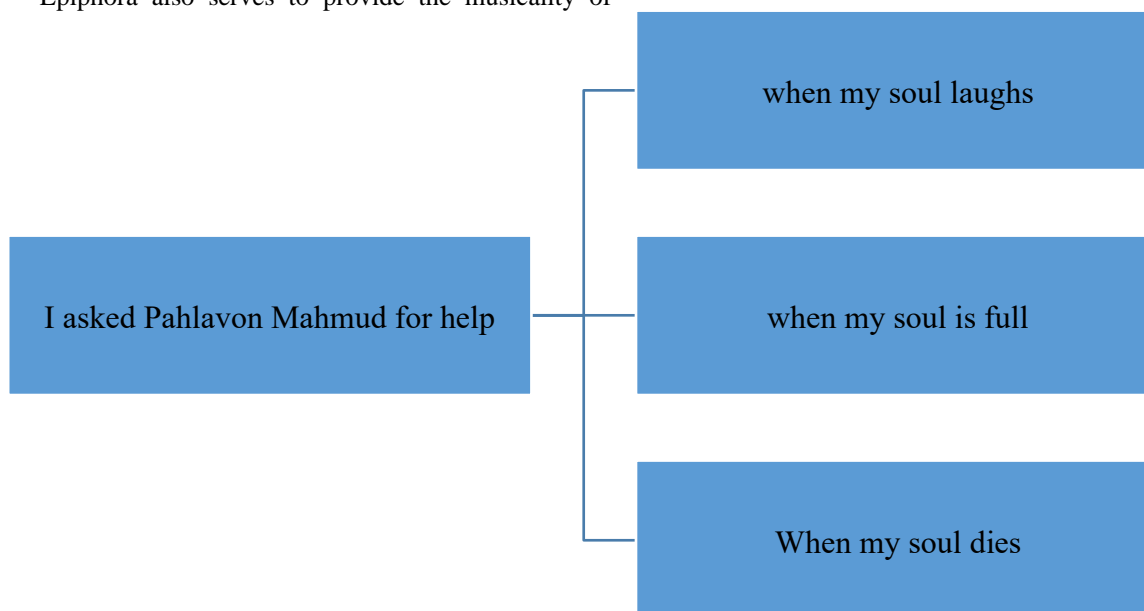


Image 1.

Here, the tomb of Pahlavon Mahmud is just a mean, the poet has actually created a typical image of a troubled man seeking encouragement, comfort. In the poem, the word soul is used in three different senses in three places.

### Conclusion

The word soul in the first verse means good mood, the word spirit in the second verse means heart

from evil, and the word soul in the third verse means pain, suffering. The poet skillfully depicts various aspects of psyche and lyrical experience on a poem.

In short, the poet, as a great artist of his time, created a huge school that was able to change the development of later Uzbek poetry, the system of images, the way of expression.

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## PARALLELISM B VARIANCE IN THE WORK OF JAMES JOYCE

**Abstract:** This article examines the formation of J. Joyce's aesthetic views, parallelism and variability in his work in the context of the culture of the late 19th - early 20th centuries. The relevance of the study is associated with the need for additional systematization of the writer's aesthetic views.

**Key words:** parallelism, variance, aesthetic views, context, riddles of literature.

**Language:** Russian

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### ПАРАЛЛЕЛИЗМ В ВАРИАНТНОСТЬ В ТВОРЧЕСТВЕ ДЖЕЙМСА ДЖОЙСА

**Аннотация:** В настоящей статье рассматривается становление эстетических воззрений Дж. Джойса, параллелизм и вариантность в его творчестве в контексте культуры конца XIX - начала XX в. Актуальность исследования связана с необходимостью дополнительной систематизации эстетических взглядов писателя.

**Ключевые слова:** параллелизм, вариантность, эстетические воззрения, контекст, загадки литературы.

#### Введение

Джеймс Джойс, один из лидеров модернистской литературы двадцатого века, родился 2 февраля 1882 года в городке Ратгар, недалеко от Дублина. Семья Джойс принадлежала к среднему классу ирландского общества и жила так некоторое время. Вскоре отец Джойс потерял карьеру, и ему пришлось несколько раз менять карьеру, переезжая с семьей из той части Дублина в ту часть. Тем не менее юному Джеймсу посчастливилось получить хорошее образование. Жизнь его юности: дни бедности и невзгод навсегда остались в его памяти [1. с 48]. Эмоциональные переживания детства, воспоминания, которые он вспомнил, впоследствии нашли отражение в произведениях писателя. Именно поэтому в некоторых работах Джойса его можно увидеть как главного героя. Например, обращает на себя внимание биографическое сходство между Стивеном Дедалом и Джойсом, одним из главных героев

«Молодежного портрета художника» и «Улиссом».

В возрасте шести лет Джойс поступил в колледж Клонгос-Вудс, принадлежавший Ордену иезуитов. Позже, в 1893 году, он перешел в Бельведерский колледж в Дублине, который окончил в 1897 году. Обе школы, которыми руководили священники-иезуиты, были в то время самой ответственной, знающей командой учителей и наставников в обучении подрастающего поколения. Демонстрируя свой талант к языку и литературе с детства [2. с 306], Джойс берет углубленные уроки фундаментальных и гуманитарных наук под эгидой Ордена иезуитов. В 1899 году Джойс поступил в Дублинский университет. За это время его отец обанкротился, а его семья обеднела.

В 1900 году в одном из периодических изданий Дублина The Weekly Review было опубликовано первое эссе Джойса по пьесе норвежского драматурга Хенрика Ибсена «Мы

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мертвы, когда мы проснулись». Из-за своей страсти к науке и творчеству в 1902 году Джойс приехал в Париж, колыбель европейской цивилизации. Изначально он работал журналистом в небольших газетах и обычным учителем в школах. Он поселился в Париже и начал изучать загадки литературы и медицины. Год спустя, когда Джойс узнал о серьезном заболевании матери, весной 1903 года он был вынужден вернуться в Дублин. Джеймс проводил большую часть своего времени с матерью, разделяя ее боль и пытаясь утешить ее. К сожалению, нежная мать вскоре скончалась. Скорбящий Джойс прожил в Дублине еще год, а осенью 1904 года снова уехал за границу с красивой молодой женщиной по имени Нора Барнакл. Тот факт, что Джойс встретился с Норой Барнакл, сотрудницей одного из отелей Дублина, в четверг, 16 июня 1904 года (важная дата), позже отражается в описании событий в романах автора. Кстати, мы не знаем, какой силой эта женщина пленила Джойса, но она стала женой Джойса благодаря своему терпению и мудрости, а 27 лет спустя, в 1931 году, вышла за него замуж. Следует отметить, что, за исключением коротких визитов в Дублин (1909, 1910, 1912), Джойс не вернулся в родную Ирландию.

Между 1901 и 1903 годами Джойс опубликовал сборник лирических произведений «Крещение», а в 1907 году - «Камерная музыка». Еще живя в Дублине, он завершил эссе под названием «Портрет художника» (1904) и начал писать более подробную и всеобъемлющую работу «Стивен-Герой» (Stephen-Hero, 1904–1905); эти произведения впоследствии легли в основу содержания романа «Портрет художника в молодости» (1916). Эти произведения автора, посвященные самоописанию, стилистически не напоминали обычные автобиографические книги [3. с 75]. Однако красноречивое содержание «мифов о художниках», ставших традиционными в западной литературе, Джойс, которой меньше века в ее очаровательной красоте, представляет собой эстетическую (художественную) силу, способную трансформировать «жизнь» в «творчество». чтобы найти материал в личных биографиях, он пытался посмотреть на себя со стороны. Для Джойса это эстетическое чувство олицетворяло важную, уникальную норму человеческого существования. Можно с уверенностью сказать, что у Джойса и его литературного «близнеца», главного героя работ Джойса, Стивена Дедала, был ключ к пониманию запутанных взаимоотношений в поисках молодого художника по созданию собственной легенды. Это отношение изменилось от текста к тексту, от крайне несправедливого, предвзятого и «субъективного» самоизображения Стивена до внутреннего «я» в тексте Улисса [4. с 248].

Понимание находит свое выражение в отдалении от духовного центра человека, личности, то есть до тех пор, пока человек не станет отчужденным от духовного мышления.

В студенческие годы, пока он не развил свои собственные представления о том, каким должен быть идеальный художник, Джойс следовал примеру художников, верно служивших литературе и искусству. Для него были особенно важны жизнь и творчество Хенрика Ибсена. Джойс похвалил норвежского драматурга за его противодействие моральному и этическому порядку в обществе, его решительную защиту своего мировоззрения и личных взглядов, а также за то, что он привнес в драму ряд новых современных идей и тем, а также новаторский стиль [5. с 156]. Чтобы читать произведения Ибсена, Джойс начал изучать норвежский язык, хвалил Ибсена, которого считал своим наставником, писал письма в состоянии экстаза и под его влиянием начал писать стихотворение «Блестящая карьера» (A Brilliant Career, 1900). По словам одного из современников Джойса, пьеса представляла собой смесь отрывков из драм Ибсена «Мы мертвецы», «Когда мы проснулись», «Марионеточный дом» и «Союз молодежи».

Джойс открыл такого художника в лице Хенрика Ибсена, для которого высокое искусство приобрело такое важное значение, как поиск высшей истины, оно также приобрело высокую ценность. Именно по этой причине он отвергал такие взгляды, как индивидуальный и коллективный «самообман», такие как духовность, мораль, религия, идеология в духе политики или национализма. Действительно, работы Джойса также содержат такие идеи и темы в интерпретации работ Ибсена, что их истоки, по сути, уходят корнями в философию Фридриха Ницше [6. с 322]. Например, Джойс в своем эссе «Драма и жизнь» (1900) описал «литературную» (ниже искусство) форму, которая фиксирует проходящие и случайные вещи в жизни, а также эстетические (художественные) требования инстинктивного желания человеческой души. Он подчеркивает, что существует небесная разница между «драмой», существующей с незапамятных времен. В этом эссе он писал: «Драма спонтанно рождается из содержания, лежащего в основе внутренней сущности жизни, и становится ей равной». Драма, по его мнению, превосходит не только «духовность», «нравственность» и даже «красоту», но и личность художника: а набор черт в некотором смысле является дополнительной привилегией украшения, великолепия, изящества. Но в драме творец полностью отрекается от своего «Я» - духовного центра, предстающего перед завесой, скрывающей лик Бога, как посредник шумной, пугающей, утрашающей Истины». Эссе Джойса, пропитанное «Духом Ибсена», было

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негативно воспринято ректором и студентами Дублинского университета, и Джойс был вынужден отстаивать свою точку зрения перед ними [7. с 71].

Однако Джойс прекрасно понимал, что истинный творец обречен на непонимание на всю жизнь. Неслучайно Джойс считал себя ирландским преемником Ибсена: оба родились и выросли в древних столицах Осло и Дублина на окраине Европы, оба выросли в бедности, оба были в изгнании, и оба резко отзывались о своих соотечественниках, которых описывали как «каменистых», «низкодуховных», окруженных повседневными мелкими заботами, «мелких» и даже «непристойных» и «аморальных».

Работа Джойса в некотором смысле, кажется, зависит от того, как он понимает идеи Ибсена, его отношение к своей работе. Джойс понимал Ибсена в духе литературного движения Возрождения, имевшего место в Ирландии. Хотя Джойс обвинял писателей и поэтов ирландского литературного возрождения в тщетных и бесплодных попытках, на самом деле он сам сочувствовал им и сотрудничал с ними. Он также смотрит на современную жизнь через зеркало мифов и легенд и видит отражение сегодняшнего дня в древних мифах [8. с 462]. В произведениях писателей ирландского литературного Возрождения мифы, связывающие XX век с законами вечности, являются именно мифами. На земле Ирландии фольклор был неразрывно связан с литературой как исторически, так и географически. Примечательно, что общественно-политическая среда, сложившаяся в Ирландии на протяжении XVIII-XIX веков, была периодом «завязанными глазами» национальной интеллигенции, требовавшей попытки восприятия объективной реальности, реальной жизни в абстрактном, символическом, духовно-нравственном.

Поэтому символы и эмблемы также играют ключевую роль в творчестве Джойса. Это важное качество художественного стиля Джойса получило дальнейшее развитие под влиянием работ Ибсена. Неразрывная связь между деталями и общностью, с особым вниманием к духовным и нравственным вопросам, обеспечивает сочетание реализма и художественного символизма в стихах Ибсена. Это, в свою очередь, типично как для стиля Джойса, так и для всего его творчества. Символы состоят из искусственных слов и являются результатом изображения объекта в духе реализма, иногда натурализма. Детали повседневной жизни, встречающиеся в драмах Ибсена и произведениях Джойса, не мешают выражению символизма, а создают для него благоприятные условия.

Проза Джойса во многом напоминает музыкальное произведение. По сути, это еще и хорошо продуманная симфония, основанная на

хорошо выстроенной мелодии. Джойс научился этой лейтмотивной технике у известного немецкого композитора Рихарда Вагнера. В своих ранних работах Джойс пытался усовершенствовать этот метод, свести его воедино, создать неповторимый «мост» между повседневностью и символикой, объединив разные цвета, фрагменты и различные события. Так что Джойс безразличен или безответственен. «Я очень тщательно подумал о своей книге, - пишет он, - и принимаю ее так, как представляю себе классические традиции своего искусства» [9. с 411].

Такие эмоции, как гармония и понимание, также играют важную роль в творчестве Джойса. Полнота - это исчерпывающее изображение человеческой и общественной жизни, сильное единство индивидуальности и общности, а значит, в пьесе много социальных и психологических деталей. Гармония - это строгая последовательность рассказов, идеальная последовательность, сложный набор важных идей и тем, баланс тона речи и стилистических особенностей, то есть последовательность от абзаца к абзацу. Неслучайно сам автор аранжировал и аранжировал рассказы в книге «Дублинцы». Здесь он строго придерживается принципа гармонии.

Итак, Джойс, отвергавший творческие идеи и хорошо известные способы выражения своего мировоззрения, хвастался своим уровнем знаний, научным и культурным уровнем, манерами, высокомерным поведением и стремился быть независимым и смелым в Ирландии. Отчасти это произошло из-за короткой поездки в Париж. Джойс заинтересовался творчеством сторонников французского символизма, прочитал по существу стихи Дж. Д'Аннунцио, изучил произведения Г. Флобера и Э. Золя, в определенной степени сосредоточился на эстетике О. Уайльда, Рихарда. Смотрел оперы Вагнера, учение Зигмунда Фрейда о психическом анализе человека. Но в то же время ирландский художник Джеймс Кларенс Венген также написал серию эссе о своей жизни и творчестве, пытаясь осознать свое место в истории Ирландии [10. с 58]. По его мнению, Ирландия неоднократно отвергала беспристрастные усилия ирландских талантов, самоотверженных детей по представлению и развитию европейской культуры и искусства. В результате в 1904 году после долгих споров и неустанных исследований Джойс пришел к выводу, что ирландский художник, который хотел откровенно говорить об Ирландии, мог быть по-настоящему свободным и освобожденным только вдали от своей родины. Потому что гонения гарантировали независимость, а позиция, основанная на принципах космополитизма, защищала от пороков «местничества», «отсталости», а также «ложного

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патриотизма» и «национализма». Ирландия, которая изо всех сил пытается продемонстрировать свою независимость, несмотря на то, что она страдает от британского политического притеснения и религиозной и духовной зависимости от Ватикана, нуждается в новом искусстве, верном принципам «реализма»

Ибсена. Поэтому Джойс утверждает, что бывшая Ирландия, «изумрудный остров» мифов и легенд, древняя земля поэтов и поэтесс, уже мертва, а Йейтс и Ирландский литературный театр одержимы устаревшими идеями, обычаями, традициями и ценностями.

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## USE OF MODERN INFORMATION AND COMMUNICATION TECHNOLOGIES IN TEACHING FOREIGN LANGUAGES

**Abstract:** The use of information and communication technologies in teaching foreign languages has sharply intensified in the education system in recent years. It goes without saying that technology-driven direction plays an important role in ensuring high quality teaching skills. Technology is an influential tool for both teachers and students, from which they profit more. It goes without saying that our age is the age of technology. This is why today's climate requires teachers to be aware of information and communication technologies, and they need to know how to use them in their teaching. In addition, the method of teaching foreign languages using modern technology includes many effective strategies in the curriculum.

**Key words:** technology, method, teaching foreign languages, educational process, instrument, teaching skills.

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### ИСПОЛЬЗОВАНИЕ СОВРЕМЕННЫХ ИНФОРМАЦИОННЫХ И КОММУНИКАЦИОННЫХ ТЕХНОЛОГИЙ ПРИ ОБУЧЕНИИ ИНОСТРАННЫМ ЯЗЫКАМ

**Аннотация:** Использование информационных и коммуникационных технологий в обучении иностранным языкам резко активизировалось в системе образования в последние годы. Само собой разумеется, что направление с использованием технологий играет важную роль в обеспечении высокого качества преподавательских навыков. Технологии - это влиятельный инструмент как для преподавателей, так и для учащихся, от которого они получают большие прибыли. Само собой разумеется, что наш век - это эпоха технологий. Вот почему сегодняшняя атмосфера требует от учителей осведомленности об информационных и коммуникационных технологиях, и им необходимо знать, как использовать их в своем учебном процессе. Кроме того, способ обучения иностранным языкам с использованием современных технологий включает в себя множество эффективных стратегий в учебном курсе.

**Ключевые слова:** технология, метод, обучение иностранным языкам, учебный процесс, инструмент, преподавательские навыки.

#### Введение

Студенты могут выучить изучаемый язык с помощью информационных и коммуникационных технологий без каких-либо затруднений. Учащиеся получают больше возможностей

улучшить свои языковые навыки, если обучение осуществляется с использованием технологий. В результате учащиеся могут быть мотивированы к большему успеху благодаря преподаванию и обучению, основанному на технологиях.



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Умные доски, компьютеры, смартфоны, экраны и т. д. облегчают изучение иностранных языков. Умные доски - полезные инструменты в классе. Например, с помощью умных досок можно научить студентов правильно и свободно произносить слова, используя голос носителя языка.

В этой статье обсуждаются особенности информационно-коммуникационных технологий (ИКТ) как одно из хороших преимуществ в учебной среде, а также представлены эффекты обучения, основанного на технологиях, как основной системы на сегодняшний день. Однако мы должны уделять внимание преподаванию и обучению как социальным процессам, и это общение между учителем и учениками, поэтому технологии упрощают процесс обучения, но не меняют эту социальную операцию.

Учителя должны интегрировать технологии в свои уроки. Вследствие разнообразия технологических материалов есть много преимуществ. Неудивительно, что использование технологий в стилях обучения дает положительные результаты в преподавании и изучении целевого языка. Пришло время, чтобы учебные заведения дополняли традиционное обучение использованием технологий [1. с 46]. Несомненно, в наши дни технологии считаются частью повседневной жизни, и люди, особенно молодое поколение, хорошо владеют информационными и коммуникационными технологиями. Обучение традиционными методами не доставляет удовольствия. С другой стороны, технологии могут сделать уроки намного интереснее, потому что интерактивные уроки приносят эффективные результаты.

В нашем сегодняшнем мире новое поколение растет вместе с технологиями [2. с 14]. Наиболее широко используемым технологическим устройством является смартфон. Это помощник для студентов и учителей в улучшении навыков аудирования и чтения. Кроме того, студенты могут смотреть и слушать видео или выступления на иностранном языке, в результате чего они улучшают свой языковой прогресс.

Опытные учителя создают для учащихся естественную атмосферу во время урока. Большинство учителей перед уроками объясняют, что они собираются преподавать и какие действия они могут выполнять на уроках. Чтобы провести урок эффективно, они составляют план урока и находят ресурсы, которые можно использовать [3. с 254]. В этих условиях технологические устройства - лучшее, что можно сделать для некоторых полезных занятий, и они улучшают уроки учителя. Например, учителя выполняют задания на компьютере и могут показывать учащимся на доске или экране. Этот процесс интересен и доставляет удовольствие студентам, и

это лучший метод изучения иностранных языков с любым видом деятельности. Это помогает легко понять и запомнить тему. Мероприятия помогают учащимся выучить новые слова, а технологии играют важную роль в методах обучения. Учащиеся могут добиться успеха с безраздельной мотивацией с помощью интеграции технологий в обучение языку. Интеграция может состоять из игр. Игры предлагают учащимся много преимуществ, но не следует забывать, что слишком много игр - не лучший способ обучения. Изучение и объединение исследований с обучением с помощью технологий - это цель развития языковых навыков. В настоящее время компьютеры и Интернет есть в каждой области обучения.

Информационные и коммуникационные технологии - лучший помощник учителям, они могут ответить на вопросы «чему учить», «когда учить», «как учить» и как интегрировать все их планы в повестку дня.

Компьютерные методы обучения уже сыграли значительную роль в обучении иностранным языкам. Следует признать, что технологии значительно улучшают преподавание и изучение иностранных языков [4. с 37]. Технология может включать в себя все виды компьютерных инструментов в классе. Есть много инструментов, которые мы можем использовать во время урока, например: проектор, презентации, видео, инструменты для конференций, интерактивные книги, онлайн-словари, электронные книги, интерактивные доски, веб-сайты для изучения иностранных языков, видеоигры.

Когда впервые были созданы различные виды технологий, люди должны были думать, как их использовать или представить информацию с помощью копировальной машины, компьютера, экрана или как использовать магнитофон и другие. Однако в настоящее время учителя должны найти способ получить доступ к информации и преобразовать ее с помощью технологий. Сегодня очевидно, что учебная среда требует преобразования активного обучения в интерактивное путем обмена идеями, сотрудничества с другими и создания видеороликов. В современном развитом мире важно помнить, что учебников уже недостаточно для обучения иностранным языкам, учителям необходимо организовать живой процесс и предоставить дополнительные ресурсы [5]. Мы можем достичь этого, создавая визуальные картинки, изменяя диалоги, создавая игры, викторины, слайд-шоу и дополняя урок онлайн-играми, песнями, дидактическими карточками, видео и т. д.

В прошлом традиционный способ обучения основывался только на передаче знаний. Однако сегодня этого уже недостаточно, и современное

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общество требует, чтобы учащиеся могли справляться с большим количеством сложных ситуаций. Таким образом, внедрение технологий в учебный процесс также является лучшим инструментом для определения цели студента. Информационные и коммуникационные технологии интегрированы в каждую сферу нашей жизни и на каждую работу, поэтому преподаватели и учителя должны найти баланс между использованием технологий и навыками межличностного общения.

Было высказано предположение, что для овладения языком требуется много времени и тяжелой работы, и видно, что в классе недостаточно времени, потому что время ограничено, поэтому учителя языка должны давать учащимся информацию о том, как получить доступ к информации и знания, чтобы стать самостоятельными учениками [6. с 289]. Например, учителям необходимо объяснять, что хорошо и что доступно в Интернете, чтобы изучать иностранные языки, предоставлять онлайн-материалы и создавать онлайн-среду. В Интернете учащиеся могут общаться с носителями языка. Это лучший способ улучшить свои разговорные навыки.

Информационные и коммуникационные технологии влияют на преподавание и обучение с некоторыми особенностями, такими как интерактивность, коммуникабельность, скорость, адаптивность. Благодаря технологиям действия и взаимодействия становятся возможными значительно быстрее. Он обеспечивает общение в классе и за его пределами [7]. Одним из больших преимуществ информационных и коммуникационных технологий является интерактивность с учетом интерактивных компьютерных ресурсов и приложений.

С помощью технологий преподаватели демонстрируют студентам видео- и аудиоматериалы в соответствии с целевой культурой. Кроме того, чтобы увлечь и вовлечь учащихся в занятия с использованием технологий, студенты могут легко общаться друг с другом на изучаемом языке, сотрудничать и взаимодействовать с материалами курса различными способами.

Люди всегда чему-то учились вместе с другими людьми, и технологии могут уравновесить связь между учителем и учеником в системе образования [8. с 96]. Поэтому роль учителя бесспорно значительна. Тем не менее, сами по себе технологии не так важны, как мы их ценим. Если в классе не хватает компьютеров для каждого ученика, учитель может записать видео с темами, и они преобразовывают или делятся на свои карточки и смотрят их дома. Студент также может делиться презентациями, проектными работами, заданиями с учителем и сверстниками.

Таким образом, мы можем создать среду преподавания и обучения и организовать ее более интерактивной не только в классе, но и вне класса. Однако нет сомнений в том, что интерактивность также может быть достигнута с помощью простой черной доски и мела. Обсуждения и дебаты в классе также являются живым и естественным процессом при преподавании и изучении иностранных языков, такие мероприятия улучшают и расширяют кругозор и знания учащихся. Соревнования слов или ролевые игры также являются положительными занятиями, которые могут повлиять на учащихся. Поэтому учителям необходимо создавать более эффективные способы обучения, чтобы повышать уровень знаний учащихся. Им следует убедиться, что технологии являются помощником в достижении хороших результатов и образовательных целей.

Использование видео в обучении иностранным языкам сейчас очень важно. В Интернете есть много видеороликов, которые учителя могут показывать своим ученикам во время уроков. Использование видео в классе помогает повысить уровень интереса и мотивации. После просмотра видео студенты могут обсуждать и говорить о том, что они смотрят, и выполнять различные действия в соответствии с видео. Видео является не только аудиоматериалом, но и визуальным. Потому что это дает возможность студентам слышать и видеть изучаемый язык. Они наблюдают и изучают речи, интонацию и выражения носителей языка и пытаются понять контекст. Учителя могут представлять видео в классе и давать интервью или некоторые задания, связанные с видео. В этом случае ученик снова посмотрит видео дома и попытается понять и произнести свою речь на изучаемом языке. Видео помогает обогатить обучение как полезный инструмент, но мы должны помнить, что технологии доставляют контент. Мы заботимся о том, чтобы с помощью технологий кто-то мог достичь хороших результатов, если он постоянно много работал.

Технологии, учителя и учащиеся - это слова, связанные друг с другом в современном мире [9. с 58]. Конечно, мы не можем отказаться от хороших методов и практик обучения, увеличивая количество квалифицированных учителей, и в то же время мы должны признать революцию образовательной системы, интегрированной с информационными и коммуникационными технологиями. Учителя и учащиеся должны развивать и создавать технологичную атмосферу в процессе обучения. Обучение с использованием технологий вносит заметный вклад в преподавание и обучение и приводит к эффективным достижениям. Обычно считается, что интеграция технологий в обучение языку

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помогает учащимся улучшить свои знания и способствует достижению лучших результатов. В заключительной части я хотел бы сказать, что информационные и коммуникационные технологии являются наиболее важным аспектом и играют важную роль в нашей повседневной жизни. В образовательном сообществе быстро растет использование таких технологий. Уже считалось, что интеграция технологий в преподавание и изучение иностранных языков

является лучшим и эффективным способом, поскольку она обеспечивает множество полезных стратегий в процессе обучения. Технологии помогают организовать уроки более интерактивными и интересными, а также легко выучить изучаемый язык. Учащиеся могут получить больше шансов улучшить свои языковые навыки, если уроки будут интегрированы с технологиями.

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## THE CAPILLARY PERMEABILITY OF CONCRETE IN SALT MEDIA

**Abstract:** The article describes a method for testing concrete for capillary permeability. The results of the studies carried out to determine the capillary absorption ( $W_{vs}$ ) of the saline solution during evaporation and the establishment of the cyclic temperature regime for the conditions of the dry hot climate of Uzbekistan are presented.

**Key words:** salt aggression, dry hot climate, method of testing concrete for capillary permeability, cyclic temperature conditions, salt solutions, capillary absorption index.

**Language:** English

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### Introduction

In world practice and in the republic, there is an urgent direction to provide the construction industry with high-quality materials and structures, including those that increase the corrosion resistance of buildings, structures and its structures, especially under the influence of the most significant for the republic complex sulfate-magnesia-chloride aggression of surface and subsoil waters.

Corrosion of concrete can occur due to the decomposition of hydrated clinker minerals in the cement stone, as well as due to the appearance in concrete of internal stresses caused by crystallization of corrosion products in the pores of the cement stone.

The destruction of concrete due to the decomposition of hydrated neoplasms is due to the removal of their dissolved components from the pore fluid, causing an imbalance between the cement stone and its liquid phase.

The corrosion process resulting from the crystallization of corrosion products in the pores of a cement stone is associated with the kinetics of the formation of these products and the properties of the structure they create.

In this case, the corrosion resistance of the concrete cement stone depends both on the chemical resistance of its constituents in relation to an

aggressive agent (for example, the  $SO_4^{2-}$  ion), and on the rate of penetration of the solution of this aggressor into the cement stone [1].

Aggressive salt medium penetrates into the cement stone through the system of capillary pores in the form of an aqueous solution under the action of the so-called capillary pressure, which reaches especially high values for small pores.

The corrosion resistance of concrete is known to be related to the capillary permeability of the concrete. In this case, the capillary permeability of concrete depends on the cement consumption, the parameters of the pore structure, the composition of the saline solution and the test conditions. The capillary absorption of concrete naturally increases as the composition of the saline solution becomes more complex. This can be explained by a higher concentration of ions in sulfate-chloride solutions and a relatively large accumulation of salts in the pores of the concrete.

Under conditions of the corrosive action of aggressive salt media on cement concrete, it is especially important to quickly assess the capillary permeability of concrete under conditions of evaporation and absorption of saline water, as well as to predict the salt resistance of concrete. However, to date, the existing methods are imperfect, which in

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practice creates difficulties in assessing the comparative efficiency of the use of various compositions or technological methods for preparing concrete to increase its salt resistance [2-7].

When exposed to a salt aggressor and active evaporation of saline solutions in a dry hot climate of the republic, when assessing the capillary permeability of a cement stone, the need to take into account the climatic effect is dictated [8-14].

According to the authors, the test method for capillary suction of a salt solution during evaporation should take into account the occurrence of additional defects in the structure of concrete when the samples are kept in a dry hot climate and ensure that the temperature and relative humidity are consistent with climatic factors. In this case, concrete samples should be tested, and not mortar (due to distortion of the results of determining capillary permeability) [15-23].

### Method for testing concrete for capillary permeability. Comparative experiments.

In order to substantiate the method of testing concrete for capillary permeability during the evaporation of the saline solution, comparative experiments were carried out using 4x4x4x16cm beams made of concrete and its mortar part. The samples were made from a concrete mixture with mobility of O.K. = 2 cm. Cement consumption 290, 360, 430 kg /m<sup>3</sup> and W /C equal to 0.61; 0.51; 0.45 with a ratio of components (C: P: U): 1) 1: 2.31: 4.57; 2) 1: 1.72: 3.41; 3) 1: 1.26: 2.50.

Mortar mixtures of composition (C: P) 1) 1: 2.31; 2) 1: 1.72; 3) 1: 1.26 with a mobility of 2 cm at a W /C equal to 0.5; 0.47; 0.45.

The technique is based on assessing the ability of concrete to absorb a saline solution in direct contact with the surface of a liquid aggressive medium after cyclic temperature exposure to 4x4x4x16cm beam specimens and stabilization of the defectiveness of its structure.

Following this method, the determination of the value of capillary suction is carried out in the following test mode: 8 h blowing with warm air and 16 h - cooling in a climatic chamber (the accepted differences are necessary for phase transitions of salt solutions in the zone of the evaporating surface of the samples).

The amount of aggressive solution absorbed by the concrete sample for a certain period of time ( $W_{ws}, \%$ ) is taken as the indicator of capillary absorption.

The criterion for assessing the defectiveness of the structure was the porosity of concrete samples.

The above technique applies to the assessment of the capillary permeability of concretes prepared with Portland cement according to GOST requirements under conditions of contact with an aggressive mineralized medium in the presence of an evaporating surface.

Using this technique, in a short period, it is possible to establish the effectiveness of various technological factors to increase the resistance of concrete under conditions of capillary absorption of salt solutions, in particular, the role of the mineralogical composition of cement, the composition of concrete, the type of chemical modifier, the initial density of concrete, aggregates [24-27].

The investigated concrete samples of at least three for each composition are formed from a concrete mixture of a laboratory or production composition that meets the requirements of GOST 10181.0-81.

The modes of compaction and hardening are similar to those adopted for the production of concrete and reinforced concrete structures. The test is carried out on specimens-beams measuring 4x 4x 16 cm 28 days after heat and humidity treatment or holding in a normal hardening chamber (at a temperature of  $20 \pm 3^\circ\text{C}$  and relative humidity of at least 90%). The concentration of an aggressive saline solution is taken depending on the specific operating conditions of concrete and reinforced concrete structures.

### Discussion of experimental results.

As expected, the highest capillary absorption ( $W_{ws}$ ) of the saline solution during evaporation occurs at  $40^\circ\text{C}$  and relative humidity of 30%, regardless of the type of cement.

The dependence of the capillary absorption of concrete at a 5.5% sodium sulfate solution is shown in Table 1. Dependence of capillary absorption of concrete at 5.5% sodium sulfate solution on the number of cycles of preliminary temperature exposure to samples

**Table 1.-Dependence of capillary absorption of concrete at 5.5% sodium sulfate solution.**

Cement consumption, kg/m <sup>3</sup>	$W_{ws}, \%$ after temperature exposure, cycles				
	0	20	40	60	80
290	3,61	3,46	4,04	4,40	4,43
	100	90	112	122	123
360	3,12	2,96	3,68	4,05	4,08
	100	95	118	130	131
430	2,54	2,36	3,17	3,50	3,54
	100	93	125	138	139



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	ISI (Dubai, UAE) = 1.582	ПИИИ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
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The dependence of the capillary absorption of concrete in a sulfate-chloride solution after

preliminary temperature exposure to the samples is shown in Table 2.

**Table 2. - Dependence of the capillary absorption of concrete in a sulfate-chloride solution after preliminary temperature exposure**

Cement consumption, kg/m <sup>3</sup>	W <sub>ws</sub> , % after temperature exposure, cycles				
	0	20	40	60	80
290	2,5 % + 4,5%				
	3,87	3,75	4,41	5,01	5,03
	100	97	114	129	130
	3,23	3,03	3,84	4,41	4,44
	100	94	119	137	130
360	2,61	2,40	3,31	3,74	3,77
	100	92	127	143	144
	5,5 % + 5,5 %				
290	4,05	3,97	4,66	5,21	5,25
	100	98	115	130	131
	3,42	3,25	4,10	4,72	4,75
360	100	95	120	138	139
	2,70	2,57	3,53	3,91	3,94
430	100	93	128	145	146

At the initial stage of capillary absorption and evaporation of the saline solution, the expansion rate is low (the conditions for the development of maximum hydrostatic pressure values have not been created), then the relative expansion deformations increase. At the same time, the capillary absorption of saline solutions naturally decreases with increasing test duration. At the same time, there is a clear relationship between the relative expansion deformations ( $\epsilon$ ), the value of the bending strength drop ( $R_{ben}$ ) and the depth of concrete destruction with capillary permeability ( $W_{vs}$ ). So the more  $W_{vs}$ , the higher  $\epsilon$  and the depth of destruction, and the decrease in  $R_{ben}$ .

The preliminary cyclic thermal effect contributes to the growth of  $W_{vs}$  of the solution by 21-36%, and of concrete by 24-41%, which is probably associated with an increase in internal temperature stresses arising in concrete and, therefore, a large defectiveness of its structure.

The influence of the preliminary cyclic temperature effect on concrete samples is enhanced when tested in sulfate-chloride solutions. With the complication of the composition of the saline solution,  $W_{vs}$  increases by 30-46%.

Complicating the composition of the saline solution and increasing the concentration of ions stimulates the process of capillary absorption, and the preliminary cyclic effect on the samples makes this difference even more noticeable.

The established kinetics of capillary absorption when testing concrete according to the adopted method indicates that after 3 months the value of capillary absorption remains practically constant. It was found that  $W_{ws}$  of solution samples, depending on the consumption of cement, is 20-33% higher than that of concrete.

The determination of the resistance coefficient is usually calculated from the ratio of the tensile strength of concrete in bending after testing the samples for capillary suction to the tensile strength of concrete in bending after holding the samples under normal conditions at 28 days of age. According to the results of the experiments, it was found that the salt resistance coefficient after one year of testing is generally within the established requirement and is equal to 0.85.

### Summary.

Thus, the proposed test method for capillary suction of a salt solution during evaporation makes it possible to take into account the occurrence of additional defects in the structure of concrete when holding samples in a dry hot climate and to ensure that the temperature and relative humidity correspond to climatic factors. For a reliable assessment of the capillary permeability of concrete under FLC conditions, it is sufficient to subject the samples to 60 cycles of preliminary alternating heating and cooling, followed by testing in a climatic chamber for capillary absorption of a salt solution at a temperature of 40 °C and relative air humidity of 30%.

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## COMPOSITE POLYMER MATERIALS FOR USE IN WORKING BODIES OF COTTON PROCESSING MACHINES AND MECHANISMS

**Abstract:** Antifriction and anti-friction-wear-resistant composite materials based on high-density polyethylene with good mechanical strength, high wear resistance and low friction coefficient have been developed. They can be recommended for the manufacture of working bodies of cotton machines and mechanisms of the cotton ginning industry.

**Key words:** High density polyethylene, composition, raw cotton, physical and mechanical properties, anti-friction and wear-resistant material, peg.

**Language:** Russian

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### КОМПОЗИЦИОННЫЕ ПОЛИМЕРНЫЕ МАТЕРИАЛЫ ДЛЯ ИСПОЛЬЗОВАНИЯ В РАБОЧИХ ОРГАНАХ ХЛОПКОПЕРЕРАБАТЫВАЮЩИХ МАШИН И МЕХАНИЗМОВ

**Аннотация:** Использованные антифрикционные и антифрикционно-износостойкие композиционные материалы на основе полиэтилена высокой плотности, обладающие хорошей механической прочностью, высокой износостойкостью и низким коэффициентом трения. Могут быть рекомендованы для изготовления рабочих органов хлопковых машин и механизмов хлопкоочистительной промышленности.

**Ключевые слова:** Полиэтилен высокой плотности, композиция, хлопок-сырец, физико-механические свойства, антифрикционно-износостойкий материал, колос.

#### Введение

Применение новых, наиболее эффективных материалов, в частности композиционных полимерных материалов и покрытий на их основе в рабочих органах машин и механизмов, работающих в условиях трения и износа с хлопком-сырцом, где наиболее важными характеристиками являются их антифрикционные свойства при взаимодействии с хлопком-сырцом коэффициент трения и изнашиваемость, которые до сегодняшнего дня изучены недостаточно.

Трение хлопка-сырца с композиционным материалом имеет сложную природу. На

механизм взаимодействия этих тел при трении влияют как молекулярные, так и механические процесс. Специфика контактирующих тел обуславливается возникновением электростатических сил. Исходя из этого, установлено, что трение хлопка-сырца с композиционным материалом имеет молекулярно-механо-электрическую природу [1-2]. Эти результаты позволяют направленно изменять и регулировать свойства материалов, обеспечивая их соответствие требованиям, предъявляемым к композиционным полимерным

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материалам, работающим при взаимодействии с хлопком-сырцом.

### Методы исследования.

Исследования механизма взаимодействия систем полимер-наполнитель и полимер-хлопок позволили установить закономерности влияния природы, структуры, вида полимеров, электропроводящих углеграфитовых, порошковых минеральных и волокнистых наполнителей на свойства композиционных полимерных материалов [3-5].

При разработке композиционных материалов наиболее важным является выбор материала и наполнителей. Этот выбор проводится с учетом целевого назначения материала: для антифрикционного материала - это низкий коэффициент трения с хлопком-сырцом в различных условиях эксплуатации, а для антифрикционно-износостойкого композиционного полимерного материала - необходимы низкий коэффициент трения и низкая изнашиваемость материала при трении с хлопком-сырцом [6-9].

В качестве наполнителей были использованы графит, сажа, каолин, тальк, стекловолокно, волластонит и хлопковый линт. Однако каждый из них имеет свои недостатки и достоинства. Экспериментальными исследованиями установлено, что стекловолокно, волластонит и хлопковый линт увеличивают коэффициент трения и снижают интенсивность изнашивания [9-11]. Графит, сажа, каолин и тальк снижают коэффициент трения, но увеличивают изнашиваемость композиционных материалов, а также улучшают тепло- и электропроводность и, тем самым, снижают температуру и величину заряда статического электричества, возникающих в зоне трения контактирующих пар. При этом,

эффективность этих наполнителей, особенно волокнистых, значительно проявляется при меньшем их содержании, то есть при меньшем содержании стекловолокна значительно снижается интенсивность изнашивания, а при дальнейшем увеличении их содержания интенсивность изнашивания композиционных материалов сравнительно мало снижается, но коэффициент трения резко повышается. Наиболее эффективное снижение коэффициента трения композиционных материалов с хлопком-сырцом наблюдается при введении сажи и графита.

В таблице приведены прочностные и триботехнические свойства разработанных антифрикционных антистатически-теплопроводящих полиэтиленовых (ААТПЭК) и полипропиленовых композиций (ААТППК), антифрикционно-износостойких антистатически-теплопроводящих полипропиленовых композиций (АИАТППК). Основные прочностные свойства образцов (разрушающее напряжение при изгибе  $\sigma_n$ , модуль упругости при изгибе  $E_n$ , ударная вязкость  $a$ , твердость по Бринеллю  $H_B$ ) определены общепринятыми методами - государственными стандартами. Комплекс триботехнических свойств (коэффициент трения, интенсивность изнашивания, температура в зоне трения с хлопком-сырцом  $T_{тр}$ ) композиции определены при удельном давлении  $P = 0,01$  МПа и скорости скольжения  $V = 1,5$  м/с при взаимодействии с хлопком-сырцом разновидности С-6524, 1-го сорта, машинного сбора, влажности  $W = 8,2\%$  на дисковом трибометре в соответствии с O'z DSt 3330: 2018.

Таблица 1. Свойства антифрикционных и антифрикционно-износостойких полиэтиленовых и полипропиленовых композитов

Материал	Разрушающее напряжение при изгибе, $\sigma_n$ , МПа	Твердость по Бринеллю, $H_B$ , МПа	Удельная вязкость, $a$ , кДж/м <sup>2</sup>	Модуль упругости при изгибе, $E_n$ , ГПа	Коэффициент трения, $f$	Интенсивность изнашивания, $I \cdot 10^{-10}$	Температура трения, $T_{тр}$ , К
ААТПЭК	35,4	45,1	21,0	0,65	0,34	5,5	326
ААТППК	85,7	76,2	91,3	0,75	0,29	3,2	308
АИАТППК	93,3	73,8	103,7	1,7	0,26	2,8	311

Как видно из таблицы, свойства полиолефиновых композиционных полимерных материалов вполне отвечают функциональным требованиям, предъявляемым к материалом деталей трущихся пар рабочих органов машин и механизмов хлопкового комплекса, главными из которых являются технологичность и экономичность используемого материала, эффективное снижение повреждаемости

хлопкового волокна и семян, исключение накопления статического электричества.

Применение разработанных композиционных полимерных материалов в рабочих органах хлопковых машин и механизмов приводит к повышению их производительности машин на 12-14 % и снижению потребляемой мощности на 7-16, поврежденности хлопковых волокон и дробленности семян [5].



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### Выводы.

В соответствии с результатами исследований и анализа физико-механических и триботехнических свойств различных полимерных материалов, принятых для исследований и разработки антифрикционных и антифрикционно-износостойких композиционных полимерных материалов, были выбраны ААТПЭК, ААТПК, АИАТПК. В качестве добавок были использованы минеральные, волокнистые и углеграфитовые

наполнители, такие как тальк, сажа, графит, каолин, окись меди, железной порошок, алюминиевая пудра и бронзовая пудра.

Разработана методика получения композиционных полимерных материалов и изготовления образцов на их основе. Для определения физико-механических свойств композиционных материалов были выбраны общепринятые методики по соответствующим стандартам, которые позволяют получить достоверные результаты.

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## SOME ISSUES OF SOCIETY AND INDIVIDUAL SECURITY IN THE CONTEXT OF THE DEVELOPMENT OF NEW UZBEKISTAN

**Abstract:** Intense attacks on the human heart and consciousness under the influence of ideological attacks, other people's ideas and views, which have intensified in recent decades as a result of the intensification of globalization on our planet, cause great concern for the world community. The article examines the problem of preventing the penetration of young people of various fanatical movements into Uzbekistan via the Internet.

**Key words:** Terrorism, Internet, radical, national, social or religious ideas.

**Language:** English

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### Introduction

The current stage of development of nations and states is characterized by the fact that the security of society and the individual, as well as the stability of the country, are becoming one of the most pressing issues on the agenda. Especially in the last decades, as a result of the intensification of globalization, the ideological attacks, foreign ideas and views, the intense attempts to conquer the human heart and mind are of great concern to the world community. What is clear is that the efforts of these forces to achieve the supremacy of geopolitical goals are often inextricably linked with the scourge of terrorism. In other words, the dangers and threats of terrorism posed by the processes of globalization are forcing humanity to think and defend more than ever and at the same time to worry about preventing the problems associated with it. In the existing literature, experts try to connect the roots of the problems of globalization with the great geographical discoveries of the XV-XVII centuries. According to them, by the twentieth century, these processes have become increasingly widespread and had begun to have a significant impact on accelerating world development. According to one

of them: "... globalization, which is manifesting itself today, has centuries-old roots. The geographical discoveries of the fifteenth and seventeenth centuries laid the economic foundation for the involvement of many countries and regions in international trade, and the industrial revolution for the strengthening and expansion of general relations. In later periods, such relationships deepened. By the beginning of the twentieth century, this process, which acquired a new qualitative character and covered all spheres of social life, began to be expressed through the concept of globalization" [1-4].

### Materials and methods

It should be noted that in our opinion, it is no exaggeration to say that today terrorism is no longer a new social phenomenon for humanity. Because the "news" about terrorist acts that take place in one or another part of the world every day and every hour through the media and social networks has formed a stereotype in the social consciousness of people as a simple occurrence of these horrible processes.

In fact, by its very nature, terrorism is a complex and multifaceted phenomenon for which there is no

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universal definition. Some authors describe terrorism as "the actions of an individual or a group of individuals to intimidate other people, to subjugate them to their will in order to establish the order required by the ideology of pro-terrorists." psychological, moral and physical violence "[2]. They claim that usually random people become the object and victims of terrorism.

Definitions of terrorism also include the fact that it is not a creative event because it did not invent anything, but an event that "simply exaggerates everything" and "exacerbates the order of certain things, the logic of violence and hesitation" [3]. Of course, because terrorism is a war in peacetime in its purpose, essence, and content, "... intimidation and despair of the population, tying the hands of the political administration and forcing it to surrender, inflicted terrible damage on innocent victims," said Alain de Benoit, a well-known political scientist. is a method of deliberately killing random people "[4].

At the same time, it should be noted that the processes of globalization, by their nature and content, on the one hand, are a positive process, and it is wrong to understand terrorism as a product of globalization. Because under the influence of these processes, the ideas of joint development prevail in the development of nations and states, integration processes serve as a basis for socio-economic development, nations and states are forced to work together to find a rational solution to many problems. Ultimately, humanity is making unprecedented gains and achievements in progress and development, and it is worth noting that. This is a real reality that is happening directly in the eyes of humans and cannot be denied. And these statements, in our opinion, will be a logical basis for quoting and conveying the above idea.

A closer look at all the definitions of terrorism reveals that they all have one epistemological commonality, that is, they all emphasize not only the violation of social and legal order as a social phenomenon in terrorism but also the inhumanity of solving global and local problems of concern to all mankind. the method is also noted.

Some experts, however, point out that terrorism has certain ontological foundations, along with aspects of gnoseological origin. This category of approaches emphasizes that the perpetration of terrorism belongs to the human person, "Who am I?", "What can I do?", "Who are you?", "Who are we?", "Who are you?" [5,6], is also directly related to the logic of the answers to questions such as. In other words, the proponent of this view argues that terrorist acts also consist of "circumstances in which a person is chosen and attributed to himself, a unity of ideas and beliefs about himself and his personal qualities" [5,7].

Today, as a result of the transition of society to a highly industrialized period in its development, the transition to a modern information society has further complicated the culture. Due to the age of the Internet,

the importance of the information space and existence has become much more active, and this is arguably one of the leading causes of the complexity of the human personality. To this end, the well-known scientist AP Krasnopolskaya rightly points out that at present "the basic social institutions responsible for the formation of personality are sufficiently changed, and even fragmented and can not fully perform their functions" [6]. This, in turn, leads to the frequent occurrence in the modern information society of such features as corruption, deviation, mental stress, deviation from ethical norms, forgetting personal responsibility for their actions. These features are self-evident and serve as an undeniable factor even for terrorist acts.

A person's propensity for terrorism is moving towards a social reality and a mass threat to the enlightened world. This is due to the negative impact of globalization processes on individuals who are the subject of society. Because of this influence, distortions, general distortions, and devaluations of the value system occur in stable social stereotypes. The fact that modern terrorist organizations with great influence (for example, ISIS) are persistently trying to make effective use of these vulnerabilities of the individual in these global processes is related to the same thing. As a result of this influence, the terrorist, who in practice becomes a "living corpse", fanatically chooses to shed the blood of innocent people as the best way to get to heaven [8-10].

Naturally, in such a complex environment, the rational use of the power of education is of great importance in the search for a solution to this increasingly complex problem. The education we are talking about here is not economics, but pedagogy, which should start in kindergarten. After all, the younger a child is, the faster he or she will learn new things than an adult. Therefore, since adults must teach a child something, we must know that it is our main duty to teach not everything, but what is necessary.

It is known that in the ideology of terrorism, in many cases, the practice of using young people as a tool in the commission of terrorist acts is widespread. At the same time, terrorists widely use modern information technologies as a mechanism to influence the minds of young people. As a result, the attractive "high ideas" created by terrorists to increase their influence will attract the attention of certain categories of young people.

Such methods and tools at the disposal of terrorists are based on the ability to effectively influence the human mind with the help of modern technology, and, so to speak, occur as a "policy of the strong against the weak." This method has a special feature, it is mainly intended for young people, young people who are not yet mentally and spiritually mature, have not yet formed a firm position in life, and have weak ideological immunity, very quickly fall

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into the trap of radical, national, social or religious ideas. This is confirmed by the 90s of our country's development. At the same time, it was observed that the youth of Uzbekistan, often through religious or ideological sects and sects, entered into sects such as Wahhabism, Hizb ut-Tahrir, Akromiya, "Nurchi", and their will and spirit were exercised in places controlled by "leaders" and "teachers".

One of the most noteworthy aspects is the experience of involving young people in terrorist activities in most cases, and in doing so, mainly the use of religious sentiments. After all, terrorists use new information technologies, primarily the Internet, to propagate the teachings of radical Islam, encourage young people to Islam, and become their "savior." They are also widely using their "rescue role" internationally, promoting terrorism as a way to wage a total war against "non-believers." This serves to destabilize the situation in the international arena, escalate conflicts and disagreements, and undermine friendly relations between different peoples and states. The complexity of the situation is due to the ease and convenience of using the Internet, the abundance and diversity of information, its attractiveness and attractiveness, and the fact that the boundaries of time and space are almost non-existent. All of this is largely turning young people into real and potential victims of terrorist technology.

## Conclusion

Terrorism remains one of the most pressing but still insurmountable problems of our time. Therefore, terrorism, which is a very complex phenomenon in terms of its purpose and essence, is multifaceted, and its problems require interdisciplinary study, which is methodological, systematic, consistent and interdependent.

Unfortunately, it is not easy to fully and imagine the original image, goals, and capabilities of these forces. Because they often work under the guise of various masks, attractive slogans and ideas. It should also be borne in mind that these forces have enormous material, financial resources and opportunities at their disposal and that they serve their well-thought-out, long-term and long-term evil plans and programs. Therefore, each of us must understand that the timely understanding of such threats to the peace and stability of the world, the constant awareness of them, the timely elimination of these actions is an urgent task to ensure the security of society and the individual today. For New Uzbekistan, which is developing step by step with the world community, a deep understanding of this need is one of the key factors in ensuring a prosperous and peaceful future for our country and people.

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## THE STUDY OF THE PHYSICAL AND MECHANICAL PROPERTIES OF SOILS OF CONSTRUCTION SITES OF PRESCHOOL INSTITUTIONS USING INSTRUMENTAL METHODS

**Abstract:** The article examines the physical and mechanical properties of the soils of the construction sites of preschools of different sizes and constructions in Fergana by instrumental methods.

**Key words:** dynamic characteristics, seismic, mobile engineering seismometric station, volumetric plan, longitudinal vibration, transverse vibration, amplifier, vibration period, vibration frequency, extinction coefficient, extinction logarithmic decrement.

**Language:** English

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### Introduction

Instrumental - a method of calculation. There are various methods for determining the physical and mechanical properties of construction site soils, engineering and geological research and study of the composition of the strata, determination of physical and mechanical properties of soil samples in the laboratory, granulimetric composition, acoustic methods and more.

In contrast, the Mobile Engineering Station was used to study the physical and mechanical properties of the construction sites of Kindergartens No. 53, No. 45 and No. 4. This section presents the methodology used to study the properties of field soils and the

instrumental-computational results obtained, as well as their analysis.

It is known [1,9,17] that in order to determine the elastic properties of soils, data on the velocities of longitudinal and transverse waves in soils and the natural density of soils are needed. The propagation velocities of waves in soils and their natural density can be determined using instrumental methods performed on the construction site under natural conditions, as well as by methods of studying soil samples in the laboratory.

Seismic sensors are installed at the construction site at a certain distance from each other to determine the velocities of propagation of longitudinal and transverse waves in the ground by means of



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instrumental measurements using the method of seismometry under natural conditions. The seismic sensors installed at these measuring points (MP) must be of the same type and with the same characteristics. For the propagation of waves on the construction site, it is necessary to create an impact force at a certain distance from the first measuring point, for example, hitting the ground with a hammer, dropping a load from a certain balance, creating small-power explosions, etc.

Seismic sensors installed at different measurement points (MP 1, MP 2, MP3) on the construction site in series when the impact force is generated. ( $t_{1r}, t_{2r}, t_{3r}$ ) and ( $t_{1s}, t_{2s}, t_{3s}$ ) are recorded. Longitudinal and transverse wave propagation velocities are determined from the records recorded using a mobile engineering station, taking into account the distance between the measurement points from the time difference of the wave fronts at the measuring points ( $\Delta t = \Delta t_{i+1} - \Delta t_i$ ). Other ground characteristics of the construction site are then determined by calculating the wave propagation velocities [10-16].

The following formula is used to determine the velocities of propagation of longitudinal and transverse waves, taking into account the difference in the arrival time of the wave front along the measurement points on the construction site:

$$S_r = L / \Delta t_p, S_s = L / \Delta t_s \quad (1)$$

Where:  $S_r$  and  $S_s$  is the velocity of longitudinal and transverse waves;

$L$  - the distance between the measuring points;

$\Delta t_p$  and  $\Delta t_s$  are the time of arrival of the longitudinal and transverse wave fronts.

Experimental studies under natural conditions determine the velocities of longitudinal and transverse waves, as well as the extinction decrements ( $\alpha$ ) and resonant frequencies ( $\omega_0$ ) of ground vibrations. Based on the results of instrumental research, the physical and mechanical properties of the soil of the construction site are calculated using the following formulas [19-31]:

$$\mu = (C_p^2 - 2C_s^2) / 2(C_p^2 - C_s^2), \quad (2)$$

$$E_z = \gamma C_s^2 (3C_p^2 - 4C_s^2) / 2g(C_p^2 - C_s^2), \quad (3)$$

$$\sigma_{co} = C_s^2 \gamma / g \quad (4)$$

$$K = (C_p^2 - \frac{4}{3}C_s^2) \gamma / g, \quad (5)$$

$$\lambda = (C_p^2 - 2C_s^2) \gamma / g, G_g = C_p \gamma / g. \quad (6)$$

The following definitions are used in formulas (2) - (6):

$g$  - the acceleration of gravity;  $\gamma = 1,8 \text{ t/m}^3$  - bulk density of the soil;

$\mu$  - Poisson's ratio;  $Ye_g$  - modulus of deformation;  $\sigma_{sd}$  - shift module;

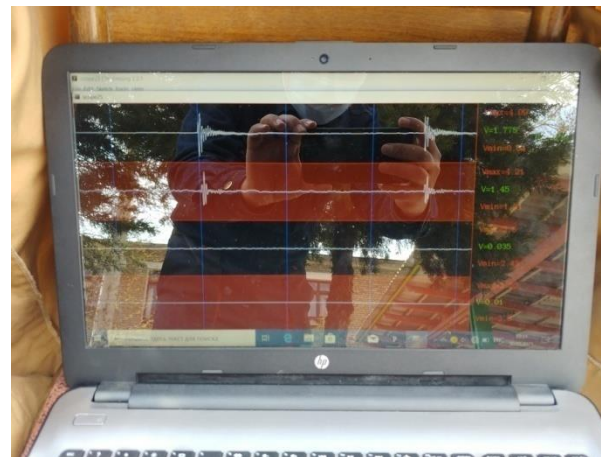
$K$  - the volume compression modulus;  $\lambda$  - Lamé constant;  $G_g$  - the acoustic virginity.

Soil properties of construction sites. Based on experimental studies conducted in the wild, the physical and mechanical properties of the construction site soils of secondary schools were determined.

Figure 1 shows the process of recording the vibrations generated by hitting the ground at the preschool education organization (PEO) construction site No. 53. During the recording of ground vibrations, seismic sensors were placed at a distance of 10 m.



a)

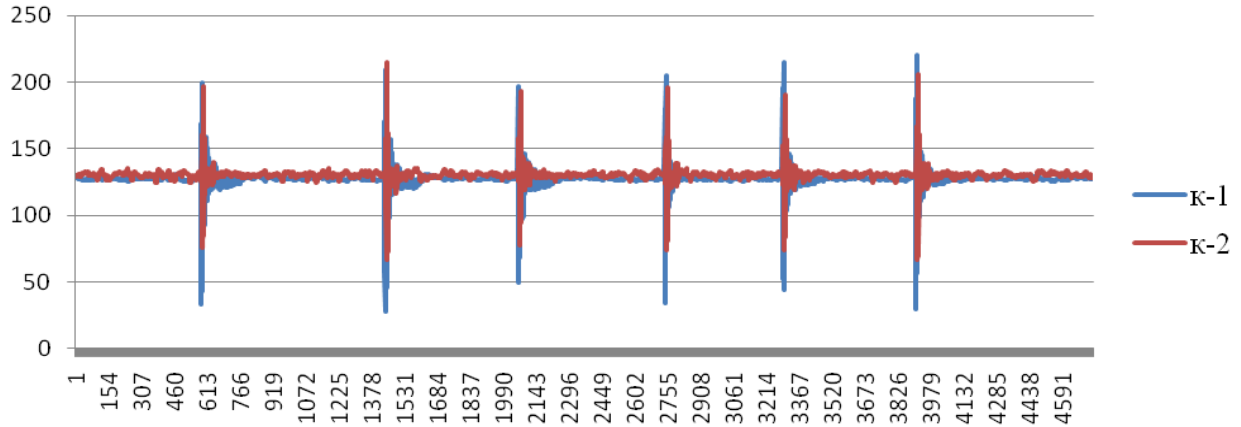


b)

**Figure 1. Impulse of No. 53 PEO construction site soil moment of recording vibrations under the influence of forces: a - mobile station; b is the appearance of the recordings on the monitor**

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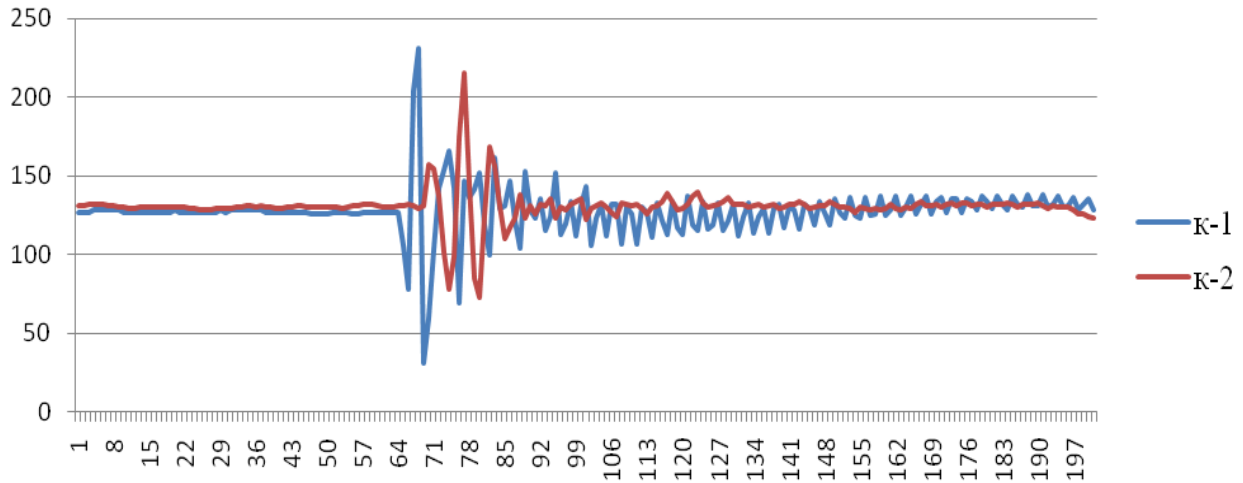
Figure 2 shows the recorded ground vibrations at the measuring points MP1 and MP2 as a result of successive hitting the ground at regular intervals.



**Figure 2. No. 53 PEO construction site with a few pressed primers  
There are notes of vibrations when struck**

Figure 3 shows the ground vibration generated by a single impact on the ground. The soil characteristics of the PEO construction site No. 53, determined as a

result of instrumental measurements and calculations, are given in Table 1.



**Figure 3. Records of vibration of the PEO construction site No. 53 when the soil is hit once with a press.**

Figure 3 shows the process of recording vibrations generated by hitting the ground at the PEO construction site No. 45. During the recording of

ground vibrations, seismic sensors were placed at a distance of 10 m.

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a)



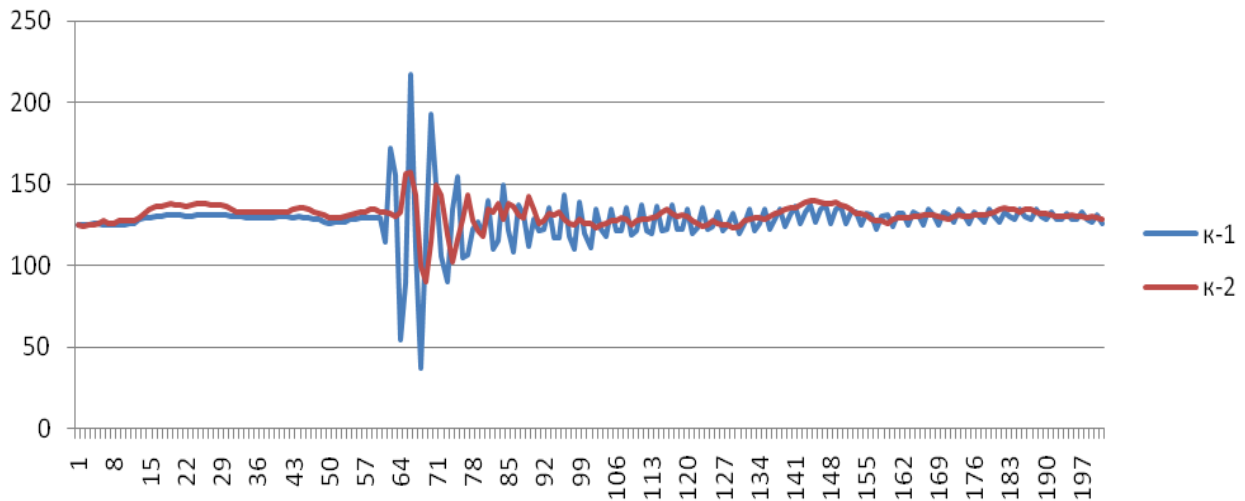
b)

**Figure 3. Moment of recording the vibration of the ground of the construction site PEO No. 45 under the influence of pulsed forces: a - mobile station; b - the appearance of the recordings on the monitor**

Figure 4 shows the recorded ground vibrations at the measuring points MP1 and MP2 as a result of repeated hitting the ground.

Figure 4 shows an elongated version of the ground vibration generated by a single press on the

ground. The elastic characteristics of the soil of the construction site PEO No. 45, determined as a result of instrumental measurements and calculations, are given in Table 1.



**Figure 4. Records of vibration of the PEO construction site No. 45 when the soil is hit once with a press**

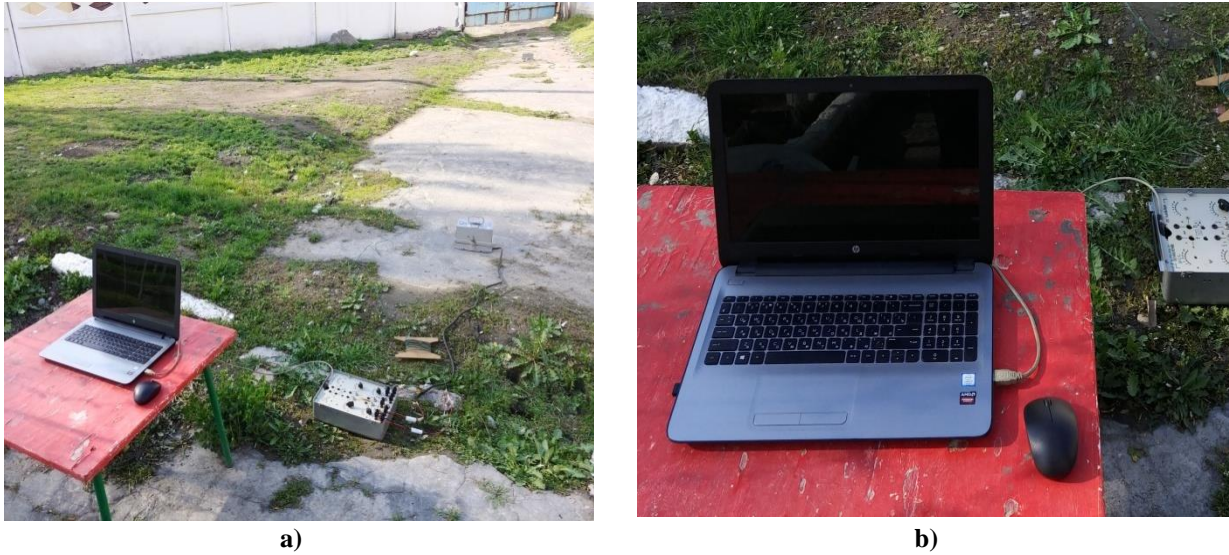
Figure 5 shows the process of recording the vibrations generated by hitting the ground at the PEO construction site No. 4. During the recording of

ground vibrations, seismic sensors were placed at a distance of 10 m.



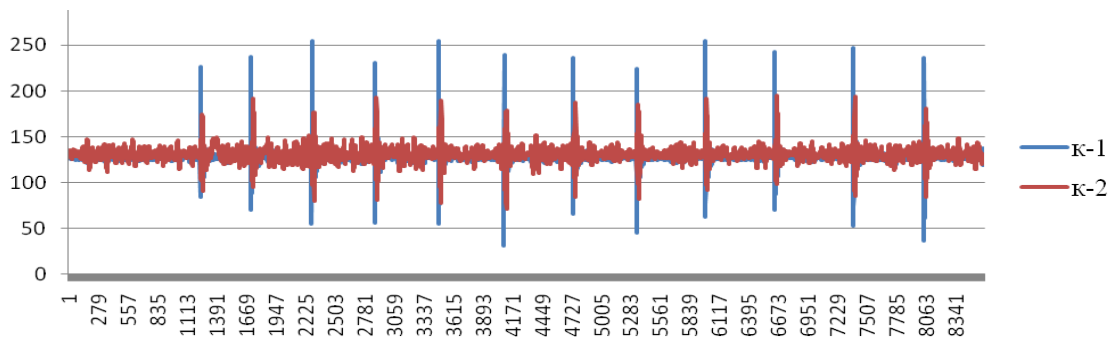
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**Figure 5. Moment of recording the vibration of the soil of the PEO construction site under the influence of impulse forces**

Figure 6 shows the recorded ground vibrations at the measuring points MP1 and MP2 as a result of repeated hitting the ground.



**Figure 6. Record the vibrations of the PEO construction site several times hitting the ground with a hammer**

**Table 1. Characteristics of school construction sites as a result of instrumental measurements and calculations**

Instrumental measurement results		Results of calculations according to formulas (7) - (11)					
$S_r$ m/sec	$S_s$ m/sec	$\mu$	$E_g$ kG/sm <sup>2</sup>	$\sigma_{sd}$ kG/sm <sup>2</sup>	$K$ kG/sm <sup>2</sup>	$\lambda$ kG/sm <sup>2</sup>	$G_g$ kG/sm <sup>3</sup> ·s
No. 53 Preschool Education Organization							
485	215	0,38	1179,0	849,0	3188,4	2622,4	0,09
No. 45 Preschool Education Organization							
645	214	0,44	1210,0	841,2	6520,0	5959,0	0,12
No. 4 Preschool Education Organization							
322	128	0,41	423,2	301,0	1503,2	1302,5	0,06

**Conclusion**

The elastic properties of the soils of the tested PEO construction sites were determined by processing the instrumental measurement records using express methodology - Mobile seismometric stations. To do

this, the velocities of longitudinal and transverse waves in the soils of construction sites of MTMs were recorded and the elastic characteristics of soils were calculated. The results of instrumental-computational studies have shown that MTMs have different types of

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soils at construction sites and that the values of longitudinal and transverse wave propagation velocities vary on average in the range  $S_r = 300\div 700$  m/sec,  $S_s = 100\div 250$  m/sec.

Based on the preliminary results of experimental studies and calculations, it was determined that the

MTMs correspond to Categories II and III in the 8-9 point zones in terms of seismic properties of the soils of construction sites. The obtained instrumental-calculation results can be used for technical inspection of buildings and calculations for seismic forces.

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## PEDAGOGICAL CONDITIONS OF FORMATION OF WEB-COMPETENCE IN FUTURE INFORMATICS TEACHERS

**Abstract:** This article considers the conditions of the scientific and methodological basis of the subject "Web-design", the factors of development of special web-competence of students in its study. A model of scientific and methodological support for the training of future professionals in the field of web design is proposed, which describes the pedagogical conditions for its implementation.

**Key words:** Web design, web competence, design, pedagogical conditions, future computer science teachers.

**Language:** English

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### Introduction

At present, there is almost no area of human activity that is not affected by design. Design simultaneously assimilates and adapts new subjects of knowledge and technology, as a phenomenon of social life, actively rooted in all areas of human creativity, today has become a broader category - "project culture".

The professional training of future IT teachers in the field of web design is aimed at training a competitive employee who is in demand in the labor market, qualified, responsible, knowledgeable and focused on the relevant areas of activity, striving to become a professional. The development and mastery of new technologies related to the use of digital technologies should be a program for the future specialist.

In connection with the implementation of the Bologna process, higher education institutions in our country have taken the direction of implementing a competency-based approach, which has been announced as one of the important conceptual rules for updating the content of education. Competence and competencies are considered as basic units of updated content. Following these concepts, the term Web-competence is widely used today by professional educators. Prospective computer science teachers

must have specialized professional competencies and knowledge, skills, and competencies to train future web design technology professionals. In order to implement this approach, it is necessary to develop a model of scientific and methodological support of the science of "web design" in order to form web competence from future professionals in the field of web design, scientifically substantiated and tested during experimental research. As a result, the identification of a set of pedagogical conditions that will help future computer science teachers to effectively form web-competence, the so-called methodological package for the subject for all forms of teaching in specialized and non-core specialties, as well as It will be necessary to develop scientific and methodological support for the subject of "Web Design", which includes z.

The main concepts of the study are defined by:

Scientific-methodical support - scientific-theoretical substantiation of the structure and content of science, planning and creation of the optimal complex of educational-methodical documents, didactic tools and teaching necessary for quality teaching of students. The state educational standard is determined by the relevant educational program, as well as modern achievements of science and technology.

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Design is a project activity based on the combination of scientific principles in design with artistic principles, creating an effect that cannot be achieved in traditional design [4].

Web design is the design and development of a website's information architecture using Web technologies, as well as optimizing application code

for the most efficient use and promotion on the Internet.

Web-competence is the process of independently designing and implementing key components of website design.

The structure of a modern web design, which includes five main blocks in the research process, is given in the table below (Table 1)..

**Table 1. The structure of modern web design**

Web-design				
Information architecture	SEO optimization	Usability	Artistic interpretation	Creation technology
The purpose and function of creating a website	Internal seo-optimization	Ease of navigation	Compositions	Provide static view of information
The logical structure of a website	External SEO optimization	The right choice of colors	Color and coloristics	Provide a dynamic (interactive) view of information
The physical structure of a website	Website promotion	Accuracy of website structure	Computer graphics	

The information architecture of a website deals with the principles of organizing and working with data to help the user successfully find and process the information they need. It includes a description of the site idea, its purpose and function. The logical structure of the site consists of a set of thematic headings with hyperlinks pre-created between the documents distributed by sections and all the pages of the source. Physical configuration is the method and appearance of placing files in the directory of a website.

Website creation technologies are divided into two groups: static and dynamic data presentation. Static web pages are hosted on a server and on request the server sends them to the browser without modification. Dynamic pages do not exist in a predefined form on the server, but they are created using server-side scripts that can be used at the same address, under different conditions, with a completely different appearance and content in the browser.

Nowadays, there are many examples to be found on the internet that can be used to create many websites. Most of them are completely free, and some templates are provided for a fee. It is possible to save some time by using the above ready-made templates in the process of achieving the goal when creating a website.

Decorating a website usually starts with creating a design using computer graphics. The designer creates one or more design options according to the terms of reference. However, the design of the main page and the designs of the standard pages are created

separately. To carry out such activities, it is necessary to have an understanding of the main categories of composition, color and coloristics. Composition is the construction of a whole work, a graphic representation in which all its elements are interdependent and harmonious. The most important formative categories of composition include scale, proportions, rhythm and scale, contrast and nuance, symmetry and asymmetry. Color is a set of systematic data from physics, physiology and psychology that studies the natural phenomenon of color, as well as philosophy, aesthetics, art history, philology, ethnography, literature, color as a cultural phenomenon. coloristics is a branch of the science of color that studies the theory of the practical application of color in various fields of human activity.

Usability is a microergonomic concept that refers to the ultimate level of ease of use of an object for its intended purpose. Usability is the assessment of a website's availability by a potential customer. Valued attributes include page load time, ways users can find the information they need, source structure optimization, design, ease of navigation, etc. are important prerequisites for long-term operation on the Internet, as several proven facts are: If he or she does not answer his or her key questions, he or she will leave the site.

Website SEO optimization is divided into three stages: internal, external and network advertising. Internal SEO starts with a definition of the semantic core, where the keywords that attract the most visitors and are written into the website application code are

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identified. Texts, links, and other code structures are customized so that search engines can successfully find them through keywords. Optimizing external SEO usually depends on creating an inbound link structure. Advertising on the Internet includes registration of the site in the main search engines, directories, other sites through cross-linking, as well as registration using automated systems [5,7].

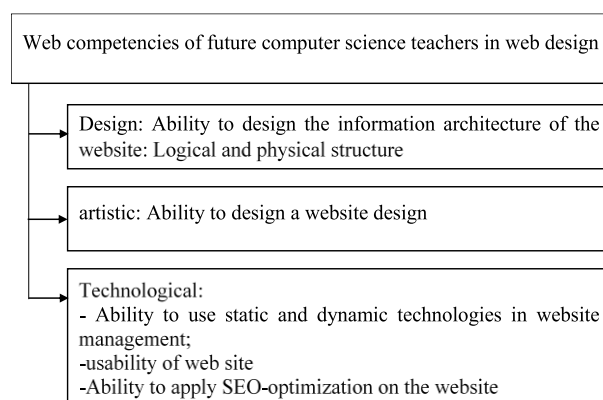
This structure of modern web design determines the requirements of employers for website design professionals. The composition of the competence of the specialist, the main customers of the higher education system are determined by employers, the state and society, on the other hand - the student himself as a future specialist and by the education system. Employers, society, the state are external participants in the education system, but they, in the end, evaluate the quality of training, first and foremost, from a practical point of view. A high level of professionalism of the specialist is important for the

employer, which means the ability to effectively perform professional functions, solve certain classes of tasks and problems in practice.

There are vacancies in the modern labor market in the field of web design: web designer, web programmer, web designer (programmer) and others. Examining them, the following professional requirements for a design specialist were identified. Website Design Specialist:

- Ability to create website architecture and design;
- Ability to develop websites using client and server software;
- Skills such as optimization and knowledge of basic ways to promote websites should be combined.

The defined structure of modern web design and the requirements of employers serve as the basis for defining the components of web competencies that a web design specialist should have [1] (Figure 1).



**Figure 1. The structure of the web-competence of a future computer science teacher in the field of web-design**

In order to effectively form web-competence in the study of the subject "Web-design" developed a model of scientific-methodological support of training, which includes the following levels:

- socio-pedagogical (social order, motivational-targeted component);
- scientific-theoretical (bases of formation of web-competence, axiological component, components of web-competence);
- educational-methodical (ontological, procedural-activity, reflexive-evaluative components) (Figure 3).

The socio-pedagogical level of the model implies the presence of professional mobility and social order to train qualified personnel in the field of web design, competitive in the labor market, web-competent, well-versed in web-design technologies, ready for continuous professional growth.

The formation of web-competence, such as the scientific and theoretical level of the model, the requirements of the state educational standard of

higher education, the development trends of web design technologies, trends in changing labor market requirements, systematic, personality-oriented and competency-based describes the basics of based approaches. These elements affect the axiological component of specialist training, which focuses on the system of assessment systems, installation and relationships in the use of web technologies in the professional activities of students. At the scientific-theoretical level, the components of web-competence have been identified: design, artistic and technological, which define the main modules of educational content in the discipline of "Web-design".

The educational and methodological level of the model includes three components.

The ontological component represents the modular science content of Web Design. At this stage, in the context of the implementation of an approach based on professional excellence, the field of knowledge, which is characterized by the transformation of the subject-thematic structure of

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educational content into a systemic activity, is taken into account. The training of future computer science teachers meets the level of development of web

technologies and the requirements of the State Education Standard.

**Table 2. Content structure of the subject "Web design"**

The project	Web-sayt maqsadlari, funktsiyalari, auditoriyasini ochib berish. Saytning axborot arxitekturasini yaratish (mantiqiy va jismoniy tuzilish). Web-saytni loyihalashda foydalanish qulayligi (usability) prinsiplaridan foydalanish
art	The concept of composition, color and coloristics. Creating options for block compositions, color schemes for the website. Using computer graphics to create a website design
Technological	Using static and dynamic technologies to create a website. Basic principles of SEO optimization

The procedural-active component of the formation of web-competence is aimed at developing website creation, creativity, independence, activism, systematic thinking, projective, research, technological skills. This goal will be achieved through the use of sufficient forms, methods and tools to shape the web skills of web design professionals in the future. The procedural-activity component is based on the principles of variability, scientific nature, availability, vision, activity, consistency and sequence, individualization of teaching, professional orientation [1,5,6].

We use a rating control system to assess learning outcomes, the advantage of which is the transition to a credit system that is actively used in most countries participating in the Bologna process. The rating control system in higher education is built as an integral part of the pedagogical system, the main purpose of which is to manage the quality of training at all stages of the educational process [3,5].

Independent work on the subject of "Web design" plays an important role in the formation of web-competence. The result can be included in the graduate's portfolio, allowing the employer to provide more detailed information about the prospective employee's qualifications.

The main purpose of independent work is to strengthen the theoretical knowledge and practical skills acquired in the study of "Web-design". In this work, the student demonstrates knowledge of the theoretical foundations of web technologies; Ability to design a website, justify the expediency of including various components of the design in it; must have skills such as the ability to use client and server programming technologies.

This work is evaluated in comparison with the study of academic discipline, that is, the results of the current performance of independent work and its defense are summarized and presented on a 100-point scale. The rating points are then recalculated on a 5-point scale.

Independent work consists of three stages: I - Website development; II - Registration of independent work; III - Protection of independent work.

Phases I and II are considered under the current control, III - under the final control.

The implementation of independent work on teaching web design, in our opinion, will help to train "experts in the field of design, integration, interdisciplinary thinking" [1, 2]. The study of the main categories of design significantly increases the effectiveness of the process of artistic and aesthetic education at the university.

The result of the implementation of the model of scientific and methodological support of the subject "Web-design" should be the training of a specialist with well-developed web-competence, competitive and in demand in the labor market.

Thus, the introduction of a model of scientific and methodological support for the training of future web design professionals provides a number of advantages in the formation of web competence: it allows you to simulate activities close to web-conditions. Studios increase learning motivation, provide a person-centered approach, shape the level of knowledge appropriate to the needs of the commercial market, allowing students to properly assess their capabilities and achieve the required level of professional independence.



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## MODERN CATALYST BASED ON CERIUM OXIDE

**Abstract:** Air pollution with harmful gases such as carbon monoxide, nitrogen oxides, and hydrocarbons leads to a serious deterioration in human health, while atmospheric pollution with hydrocarbons can lead to a significant increase in global warming processes, since hydrocarbons, and primarily methane, are effective greenhouse gases. By virtue of these circumstances, the problem of creating effective catalysts for the purification of fuel combustion products not only does not lose its relevance but also becomes increasingly acute. Cerium dioxide is now widely used on modern three-function catalytic systems (TWC). The article provides a literature review of the physicochemical properties of cerium dioxide, the mechanism of oxidation of carbon monoxide in cerium oxide, as well as the catalytic properties of cerium dioxide.

**Key words:** catalysis, carbon monoxide, cerium dioxide, Mars - Van Krevelen mechanism, TWC, OSC, rare earth elements.

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## СОВРЕМЕННЫЕ КАТАЛИЗАТОРЫ НА ОСНОВЕ ОКСИДА ЦЕРИЯ

**Аннотация:** Загрязнение воздуха вредными газами как окись углерода, оксиды азота и углеводороды приводит к серьезному ухудшению здоровья людей, в то время как загрязнение атмосферы углеводородами может приводить к значительному усилению процессов глобального потепления, поскольку углеводороды и в первую очередь метан являются эффективными парниковыми газами. В силу указанных обстоятельств проблема создания эффективных катализаторов очистки продуктов сгорания топлив не только не теряет своей актуальности, но и приобретает все возрастающую остроту. В настоящее время на современных трехфункциональных каталитических системах (TWC) широко используется диоксид церия. В статье

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приводится литературный обзор физико-химических свойств диоксида церия, механизм окисления монооксида углерода в оксиде церия, а также каталитические свойства диоксида церия.

**Ключевые слова:** катализ, окись углерода, диоксид церия, механизм Марса – Ван Кревелена, TWC, OSC, редкоземельные элементы.

### Введение

УДК 541.128 : 546.655

Учитывая стремительный рост количество автомобилей, количество вредных веществ в городской атмосфере увеличивается. Численность мирового парка автомобилей в 2015 году по данным исследований Международной организации производителей автомобилей (OICA, Organization Internationale des Constructeurs d'Automobiles, Париж) составило 947 миллионов легковых и 335 миллионов коммерческих автомобилей [1]. Подавляющая часть автомобилей имеет двигатели внутреннего сгорания, работающие на бензине. При работе таких моторов в воздух попадает большое количество продуктов неполного сгорания топлива, в том числе окись углерода.

Согласно источнику [2,3] один автомобиль в год поглощает из атмосферы в среднем более 4 т кислорода, выбрасывая при этом с отработавшими газами примерно 800 кг угарного газа (CO) и 40 кг оксидов азота (NO<sub>x</sub>).

В последние годы в связи с быстрым развитием автомобильного транспорта существенно обострились проблемы воздействия его на окружающую среду. Автомобили, работающие на ДВС, сжигают огромное количество нефтепродуктов и природного газа, нанося при этом ощутимый вред окружающей среде, главным образом атмосфере. Поскольку основная масса автомобилей сконцентрирована в крупных городах, воздух этих городов не только обедняется кислородом, но и загрязняется вредными компонентами отработавших газов. По этой же причине увеличивается риск воздействия вредных веществ выхлопных газов на здоровье человека. Особенно это заметно в крупных городах промышленно развитых стран, что является причиной таких заболеваний, как хронический бронхит, астма, эмфизема легких, сердечнососудистых, раковых и др [3]. Чрезмерное воздействие CO может приводить к изменению функционирования систем иммунитета, а, возможно, и к гибели иммунокомпетентных клеток [4].

С 1972 года в США и с 1989 года в Европе в автомобильной промышленности были введены правила, ограничивающие загрязнение воздуха,

выбрасываемое транспортными средствами. С тех пор законодательство регулярно подкреплялось все более строгими правилами, касающимися четырех категорий загрязняющих веществ: монооксида углерода, углеводородов (и других органических веществ), оксидов азота (NO<sub>x</sub>) и твердых частиц сажи [5].

### Состав автомобильных выхлопных газов

Основными токсичными компонентами выхлопных газов ДВС являются оксиды углерода, азота и углеводороды. Кроме того, с выхлопными газами в атмосферу поступают предельные и непредельные углеводороды, альдегиды, канцерогенные вещества, сажа и другие компоненты. Состав выхлопных газов двигателей зависит от множества факторов, таких как: тип двигателя (двух- или четырехтактный, с искровым или компрессионным (дизельным) зажиганием), условия движения, например городской или загородный, скорость транспортного средства, ускорение / замедление и т.д. [6]. В таблице 1 приведены типичные составы выхлопных газов для некоторых распространенных типов двигателей.

На сегодняшний момент приоритетным методом детоксикации выхлопных газов автотранспорта является каталитическая очистка. Первые работы по каталитическим очисткам начались в 1920 году [7]. Когда были опубликованы результаты ранних исследований смога в Лос-Анджелесе, французский изобретатель Eugene Houdry заинтересовался ролью выхлопных газов из дымовых труб и автомобильных выхлопов в загрязнении воздуха и основал компанию Oxy-Catalyst. Houdry первым разработал каталитические преобразователи для дымовых труб, сокращенно названные "cats" [8] и в первые получил патент на каталитический нейтрализатор (US Patent 2,674,521: Catalytic converter for exhaust gases) в 1954 году [9]. У Houdry был опыт работы инженером-механиком в нефтеперерабатывающей промышленности, и именно в этой области он научился очищать выхлопные газы из дымовой трубы. Вскоре его открытия стали широко использоваться в других малолитражных транспортных средствах, особенно в автомобилях [9].

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**Таблица 1. Пример условий выхлопа для двух- и четырехтактных, дизельных и обедненных четырехтактных двигателей [6].**

Компоненты выхлопной системы и условия <sup>1</sup>	Дизельный двигатель	Четырехтактный двигатель с искровым зажиганием	Четырехтактный двигатель с искровым зажиганием на обедненной смеси	Двухтактный двигатель с искровым зажиганием
NO <sub>x</sub>	350 – 1000 ppm	100 – 4000 ppm	≈1200 ppm	100 – 200 ppm
HC	50 – 330 ppm C	500 – 5000 ppm C	≈ 1300 ppm C	20,000 – 30,000 ppm C
CO	300 – 1200 ppm	0,1 – 6%	≈ 1300 ppm	1 – 3%
O <sub>2</sub>	10 – 15%	0,2 – 2%	4 – 12%	0,2 – 2%
H <sub>2</sub> O	1,4 – 7%	10 – 12%	12%	10 – 12%
CO <sub>2</sub>	7%	10 – 13,5%	11%	10 – 13%
SO <sub>x</sub>	10 – 100 ppm <sup>2</sup>	15 – 60 ppm	20 ppm	≈20 ppm
Твердые частицы	65 mg/m <sup>3</sup>			
Температуры (цикл испытаний)	650°C (420°C)	1100°C <sup>3</sup>	850°C	1000°C
Часовая объемная скорость газа (ч <sup>-1</sup> )	30,000 – 100,000	30,000 – 100,000	30,000 – 100,000	30,000 – 100,000

Примечание: <sup>1</sup>остальное N<sub>2</sub>; <sup>2</sup>для сравнения: дизельное топливо с содержанием серы 500 ppm производит около 20 ppm SO<sub>2</sub>; <sup>3</sup>комбинированный катализатор.

В последнее время исследователями все больше проявляется интерес к диоксиду церия, как промотирующей добавки в катализаторы окисления CO. Коммерческая доступность, высокая каталитическая активность CeO<sub>2</sub> и, собственно, улучшение свойств сложных катализаторов при добавлении этого оксида обеспечивают перспективы дальнейшего расширения области применения систем на основе диоксида церия в промышленности [21].

#### Физико-химические свойства оксида церия

Из всех редкоземельных элементов церий (Ce) является наиболее используемый в области

катализа. Церий – самый распространенный редкоземельный элемент, составляющий около 0,0046% от веса земной коры (64 ppm), что даже больше, чем медь (60 ppm). [10,11] Он содержится в ряде минералов, монацит (Ce, La)PO<sub>4</sub>, бастназит Ce[CO<sub>3</sub>] (OH, F), паразит Ca(Ce, La)<sub>2</sub>[CO<sub>3</sub>]<sub>3</sub>F<sub>2</sub>, ортит (Ca, Ce)<sub>2</sub>(Al, Fe)<sub>3</sub>Si<sub>3</sub>O<sub>12</sub>(O, OH), лопарит (Na, Ca, Ce)(Ti, Nb)<sub>2</sub>O<sub>6</sub>, эшинит (Ce, Ca, Th)(Ti, Nb)<sub>2</sub>O<sub>6</sub> [12] и церианит [13]. Высокое содержание церия и его выдающаяся каталитическая активность являются одной из причин, по которым церий является элементом, применяемым в системах каталитической конверсии выхлопных газов автомобилей в промышленности [10,12].

**Таблица 2. Основные физико-химические свойства диоксида церия [13]**

№	Свойство	Ед. изм	Значение
1	Молекулярный вес		172,12
2	Твердость по минералогической шкале		6
3	Ионный радиус Ce <sup>4+</sup>	Å	0,88; 0,92; 0,94
4	Потенциал ионизации	эВ	5,47
5	Температура плавления	°C	2400
6	Плотность	г/см <sup>3</sup>	7,132
7	Теплота образования	кДж/моль	ΔH <sub>f,298</sub> = – 1090,35
8	Теплоемкость при постоянном давлении	Дж/моль·К	C <sub>p,298</sub> <sup>0</sup> = 61,63

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9	Энергия Гиббса образования	кДж/моль	$\Delta G_{f,298}^0 = -1026,5$
10	Стандартная энтропия	Дж/моль·К	$S_{298}^0 = 62,30$
11	Электронная конфигурация церия		$4f^2 5d^0 6s^2$

Диоксид церия ( $\text{CeO}_2$ ) – белый плотный кристаллический порошок с желтоватым оттенком. Белый цвет двуокиси, является следствием содержащихся в ней примесей. Часто  $\text{CeO}_2$  бывает окрашен в цвет от желтого до темно-оранжевого, который усиливается при нагревании из-за присутствия следов празеодима или от окрашенных полиморфных форм [13,14]. Различные оттенки окраски двуокиси церия так же объясняются наличием различных примесей: неодима, железа и др. [13,15].

Церий, обладающий электронной конфигурацией  $4f^2 5d^0 6s^2$ , может находиться в двух степенях окисления +3 и +4 и образует с кислородом два основных соединения фиксированного состава ( $\text{CeO}_2$  и  $\text{Ce}_2\text{O}_3$ ) [14], ряд промежуточных соединений ( $\text{Ce}_{11}\text{O}_{20}$ ,  $\text{Ce}_9\text{O}_{16}$  и  $\text{Ce}_7\text{O}_{12}$ ), а также фазы переменного состава [16].

Диоксид церия имеет кубическую гранцентрированную решетку (структурный тип

флюорита, пространственная группа Fm3m) [13,14,17] с параметром элементарной ячейки  $a=5,411\text{Å}$ , на ячейку приходится 4 формальных единицы. В этой структуре каждый катион церия окружен восемью ближайшими эквивалентными кислородными анионами, а каждый анион тетраэдрически координирован 4 катионами.

Стехиометрия оксида церия зависит от температуры и давления кислорода. Термодинамические расчеты показывают, что металлический церий нестабилен в присутствии кислорода и легко окисляется до  $\text{Ce}_2\text{O}_3$  и  $\text{CeO}_2$ . Фактически, удаление кислорода из церия при воздействии атмосферы с дефицитом  $\text{O}_2$  при высоких температурах приводит к образованию нескольких фаз оксида церия типа  $\text{CeO}_{2-x}$  с диапазоном возможных составов ( $0 \leq x \leq 0,5$ ) [18,19].

Таблица 3. Некоторые термодинамические данные для оксидов церия [14]

Реакция	$\Delta H_{298}^0$ , кДж/моль	$\Delta G_{298}^0$ , кДж/моль	$S_{298}^0$ , Дж/моль
$\text{Ce} + \text{O}_2 = \text{CeO}_2$	-1089	-1025	61,5
$2\text{Ce} + 1,5\text{O}_2 = \text{Ce}_2\text{O}_3$	-1796	-1708	152
$\text{CeO}_{1,5} + 0,25\text{O}_2 = \text{CeO}_2$	-191	-172	-

Довольно высокая теплота образования, которая при 298К составляет – 1090,35 кДж/моль [14], обуславливает значительную устойчивость двуокиси церия. Водородом она восстанавливается лишь при высокой температуре (около 1250°C) с образованием  $\text{Ce}_2\text{O}_3$  [15,20]. Восстановление не идет глубже, чем до  $\text{Ce}_2\text{O}_3$ , даже при давлении водорода до 150 атмосфер при 2500°C. При осторожном восстановлении  $\text{CeO}_2$ , в токе водорода при температурах около 1000°C образуется в виде красивых темно-синих иголок промежуточный окисел состава  $\text{Ce}_4\text{O}_7$ . Восстановление двуокиси церия водородом до металла наблюдается лишь в присутствии металлического никеля при температуре 1380°C. При действии углерода в условиях электропечи она восстанавливается до  $\text{Ce}_2\text{O}_3$ , который при дальнейшем действии углерода превращается в карбид церия. До полуторной окиси двуокись церия восстанавливается при осторожном восстановлении металлическим кальцием [15].

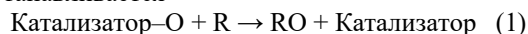
### Механизм окисления СО на диоксиде церия

Чтобы определить факторы, которые влияют на активность окисления СО, необходимо понять

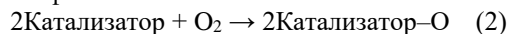
механизм реакции окисления СО. В работах [22] сообщалось, что окисление СО на оксиде церия происходит по механизму Марса – Ван Кревелена.

В 1954 г. П. Марс и Д. Ван Кревелен в своих исследованиях кинетики каталитического окисления показали, что в большинстве случаев окисление протекает по стадийному механизму попеременного окисления и восстановления катализатора. Например, реакцию окисления углеводорода R можно описать из двух стадий [7]:

1. Реакция между катализатором в окисленном состоянии Катализатор–О и углеводородом R, в которой оксид восстанавливается



2. Повторное окисление (реокисление) восстановленного катализатора кислородом газовой фазы



В случае катализаторов на основе оксида церия, поскольку восстанавливаемый оксид оксида церия может также обеспечивать адсорбированные формы кислорода, которые могут перетекать с носителя на частицы металла, а восстановленный  $\text{Ce}^{3+}$  впоследствии повторно окисляется газообразным кислородом [23]:

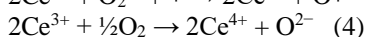
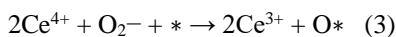


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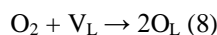
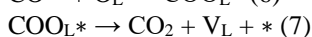
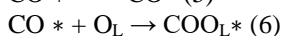
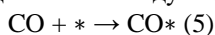
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В стационарном состоянии скорости обеих стадий должны быть равны. Строго говоря, модель Марса – Ван Кревелена не содержит каких-либо предположений о форме активного кислорода катализатора [7].

Согласно данному механизму окись церия участвует в окислительно-восстановительном цикле, в начальной стадии которого происходит восстановление  $\text{CeO}_2$  под действием  $\text{CO}$ , с последующим окислением восстановленных фаз под действием кислорода газовой смеси. Основные стадии этого процесса могут быть представлены следующими уравнениями:



Здесь «\*» обозначает участки адсорбции на поверхности, а символ стоящий рядом с соединением указывает на то, что оно находится в адсорбированном состоянии. « $\text{O}_L$ » и « $\text{V}_L$ » обозначают кислород решетки и кислородные вакансии в оксиде церия соответственно. В уравнение (5) идет процесс адсорбции  $\text{CO}$  на поверхности оксида церия. Далее адсорбированный  $\text{CO}$  реагирует с кислородом решетки, приводящая к образованию промежуточных соединений (уравнение (6)). В уравнение (7) идет процесс десорбции промежуточных продуктов реакции с образованием  $\text{CO}_2$  и кислородных вакансий, а места адсорбции обновляются. Одновременно кислород в газовой фазе активируется на катализаторе для пополнения кислородных вакансий (уравнение (8)).

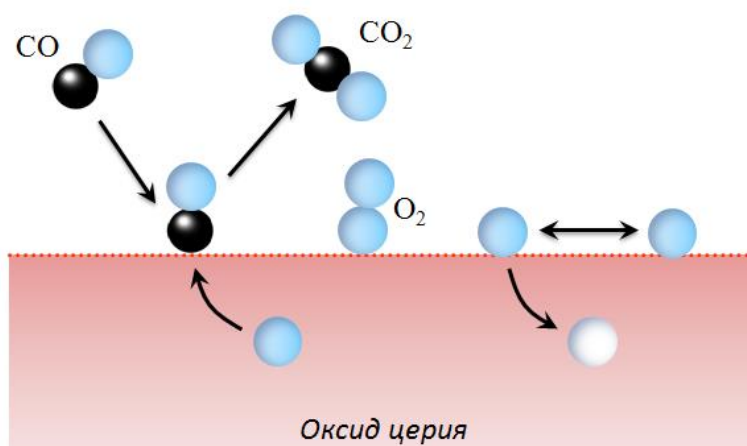


Рис.1. Реакция окисления  $\text{CO}$  на оксиде церия по механизму Марса – Ван Кревелена

Окисление  $\text{CO}$  на диоксиде церия не может быть лимитировано, ни адсорбцией  $\text{CO}/\text{O}_2$  ни десорбцией  $\text{CO}_2$ , а лимитирующей стадией процесса, является стадия экстракции кислорода решетки (уравнение (6)) [13].

### Каталитические свойства диоксида церия

$\text{CeO}_2$  находит широкое применение в катализе, как в качестве носителя, так и в качестве промотирующей добавки в сложных катализаторах. Использование оксидов редкоземельных элементов (РЗЭ) как носителей катализаторов дает возможность повышать дисперсность активных центров, стабильность поверхностных структур и подвижность кислорода в реакции окисления  $\text{CO}$  [24].

Диоксид церия обладает всеми свойствами хорошего носителя, это – высокая температура плавления, термостойкость, реакционная способность в твердофазных реакциях и

доступность. Так же одним из свойств диоксида церия, которым не обладает большинство носителей, является то, что он термолюминисцентен при температуре  $\geq 400^\circ\text{C}$ . При этом излучаемая энергия может поглощаться молекулами реагентов, в результате чего скорость реакции может облегчаться или затрудняться [25].

Однако в области высоких температур  $\text{CeO}_2$  нестабилен, что проявляется, прежде всего, в изменении его текстурных характеристик. При термической обработке (1000–1100К) удельная поверхность  $\text{CeO}_2$  обычно понижается до нескольких  $\text{m}^2/\text{г}$ . Не менее важным фактором является стоимость  $\text{CeO}_2$ , которая значительно выше стоимости таких носителей, как  $\text{Al}_2\text{O}_3$  и  $\text{SiO}_2$ . Поэтому  $\text{CeO}_2$  используют в основном в комбинации с другими оксидами [19].

Однако наибольший интерес представляет применение  $\text{CeO}_2$  в трехфункциональных катализаторах (TWC, three way catalyst). Диоксид

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церия в TWC радикальным образом изменил характер прохождения процессов. Уникальная способность  $\text{CeO}_2$  накапливать кислород в окислительной среде (OSC – oxygen storage capacity, кислородная емкость) за счет перехода  $\text{Ce}^{3+}$  в  $\text{Ce}^{4+}$  и высвобождать его для участия в реакциях в восстановительной среде путем обратного перехода  $\text{Ce}^{4+}$  в  $\text{Ce}^{3+}$  обеспечивает высокую конверсию токсикантов в обоих процессах, независимо от концентрации кислорода в газовой фазе [21].

Однако роль диоксида церия в TWC не ограничивается функцией OSC и связанной с ней способностью быстрой транспортировки кислорода. Одной из наиболее важных особенностей церийоксидсодержащих катализаторов TWC является высокая степень синергетического взаимодействия с благородными металлами, что обуславливает:

1. Возрастание скорости обмена между кислородом объема решетки и газовой фазы.
2. Увеличение дисперсности нанесенных благородных металлов.
3. Повышение термической стабильности носителя  $\text{Al}_2\text{O}_3$ .
4. Увеличение степени окисления CO за счет кислорода решетки [21].

Для смешанных оксидных катализаторов в процессах окисления CO или совместной очистки от CO и  $\text{NO}_x$  добавление оксида церия к катализаторам увеличивает их каталитическую активность, особенно в области высокой температуры. Это объясняется тем, что присутствие оксида церия усиливает подвижность кислорода [24].

В работе [24] рассматривается влияние оксидов РЗЭ (в частности оксида церия) на снижение энергии активации и увеличении скорости окисления CO при низких температурах. Исследование структуры таких катализаторов методом статических магнитных измерений по Фарадею показали, что в присутствии РЗЭ упорядоченная кристаллическая структура оксидов переходных металлов практически не образуется, при этом происходит аморфизация активного компонента катализатора и образуются новые активные центры. Так катализаторы, содержащие Fe, Ce, нанесенные на оксид алюминия уже при температуре 220–230°C проявляли 100%-е превращение CO в  $\text{CO}_2$ .

Изучение  $\text{CeO}_2$  в качестве промотирующей добавки проводилось в сравнении с другими добавками, в первую очередь оксидами редкоземельных элементов, с целью повышения активности, адсорбционных свойств или стабильности системы. Было найдено, что промотирование оксидомедного катализатора, нанесенного на оксид алюминия, оксидами лантана и церия, понижает температуру 100%-ой

конверсии CO в реакции окисления, при этом действие добавки оксида церия более эффективно. Полученные катализаторы характеризовались высокой прочностью и устойчивостью в отношении отравления  $\text{SO}_2$  и соединениями свинца [26].

Основной особенностью взаимодействия оксида церия с оксидами переходных металлов является проявление в ряде случаев эффекта синергизма каталитической активности, когда смешанные катализаторы оказываются значительно активнее исходных оксидов. Исследование окисления CO на оксидах РЗЭ и d-переходных металлах, выполненное в работах [26,27,28] показало, что для смешанных бинарных систем Ce–Co, Ce–Fe, Ce–Cu, Ce–Mn наблюдается эффект синергизма активности. Для бинарных оксидов Ce–Ni и Ce–Cr температура 100%-го окисления CO оказалась выше, чем для чистых оксидов. Следует отметить, что эффект синергизма для системы Cu–Ce наблюдался при избытке  $\text{CeO}_2$ , а для Fe–Ce, Co–Ce и Mn–Ce, наоборот для составов с большим содержанием оксида 3d металла и меньшим количеством  $\text{CeO}_2$ .

При объяснении эффекта синергетизма активности было высказано предположение об образовании новых фаз в катализаторах, проявляющих сверхаддитивную активность. Данные РДА для образцов Cu–Ce, обнаруживающих синергизм, свидетельствовали о высокодисперсном состоянии обоих оксидов, но не показывали образования новых фаз. Наоборот, в соосажденных Cr–Ce системах, не проявлявших синергизма активности, по данным РДА, наблюдалось образование твердых растворов. У исследователей пока нет единого четкого объяснения проявления эффекта синергизма в церийоксидсодержащих системах.

По другим литературным данным [29,30] каталитическая активность смешанных катализаторов сильно зависит от способа приготовления. Методы приготовления, как сообщается в [29], сильно влияют на активность медно-цериевых катализаторов. Различия в методе приготовления катализатора часто ведут к изменениям в морфологии и дисперсии частиц меди. Наиболее частые методы приготовления включают в себя совместное соосаждение, отложение-осаждение, пропитывание, применение конденсации инертного газа, золь-гель метод.

### Вывод.

Согласно изученным литературным данным выявлено, что окисление CO на оксиде церия происходит по механизму Марса – Ван Крвелена и структура  $\text{CeO}_2$  не претерпевая каких либо изменений, может аккумулировать большую часть кислородных вакансий. Это соответствует

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трансформации согласно уравнениям (3) и (4). Данной особенностью  $\text{CeO}_2$ , определяется его так называемая кислородная емкость (oxygen storage capacity, OSC), которую связывают с наличием окислительно – восстановительной пары  $\text{Ce}^{4+}/\text{Ce}^{3+}$ . Применение диоксида церия в TWC катализаторах обуславливается функцией OSC и связанной с ней способностью быстрой транспортировки кислорода, а также одной из

наиболее важных особенностей церийоксидсодержащих катализаторов TWC является высокая степень синергетического взаимодействия с благородными металлами. Именно с этими обстоятельствами во многом связано рост числа публикаций посвященных исследованию свойств церийоксидсодержащих катализаторов.

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## TOURISM IS THE FUTURE OF THE COUNTRY'S ECONOMY

**Abstract:** *Despite the huge potential of our country in the field of tourism, for many years this opportunity has not been fully and effectively used. Favorable economic, organizational and legal conditions for the development of tourism have not been created, everyone works as they see fit. The article will focus on the development of tourism.*

**Key words:** *tourism, infrastructure, tourism industry, organization and implementation of tourism, tourism goals, legal framework for tourism.*

**Language:** Russian

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### ТУРИЗМ - БУДУЩЕЕ ЭКОНОМИКИ СТРАНЫ

**Аннотация:** *Несмотря на огромный потенциал нашей страны в сфере туризма, на протяжении многих лет эта возможность не использовалась полностью и эффективно. Не созданы благоприятные экономические и организационно-правовые условия для развития туризма, все работают так, как считают нужным. В статье речь пойдет о пути развития туризма.*

**Ключевые слова:** *туризм, инфраструктура, индустрия туризма, организация и реализация туризма, цели туризма, правовая база для туризма.*

#### Введение

Индустрия туризма - это система, охватывающая социальные, экономические, культурные, образовательные, политические и другие отношения, связанные с деятельностью субъектов, требующих организации и реализации логистических услуг, связанных с туристами. В процессе организации и реализации туризма между субъектами выстраиваются различные взаимоотношения, обсуждаются и принимаются оптимальные решения [1. с 28]. В сфере туризма отношения между субъектами многогранны, комплексны и сложны, и очень сложно достичь цели туризма, не регулируя их четкими, прочно установленными и стабильными правовыми нормами.

Узбекистан стал членом Всемирной туристической организации в 1993 году, и за прошедший период была создана прочная правовая база для отрасли. В результате усилий по обеспечению их последовательной реализации увеличилось количество туроператоров и отелей. В результате в прошлом году страна приняла на 24,3% больше туристов, чем в предыдущие годы.

Туризм - многогранная социально-экономическая область, и важно изучать ее в таких областях, как цель, организационная форма, количество туристов, возраст, продолжительность, источники финансирования [2. с 149]. Потому что благодаря этому можно полностью проанализировать туристический потенциал нашей страны и определить возможности для дальнейшего развития.



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Например, в зависимости от цели можно составить туристические маршруты, такие как осмотр и изучение исторических памятников, бизнес, паломничество, спорт, отдых (отдых и реабилитация), образование, экзотика, экология, транзит, промышленность, сельское хозяйство, медицина.

Наша уникальная страна входит в число ведущих стран мира по количеству исторических памятников. В нашем районе объекты культурного наследия, исторические памятники и святыни, места археологических раскопок и монументальные памятники включены в список государственной охраны. Помимо историко-культурного туризма, новые туристические направления, особенно развитие экотуризма, будут способствовать увеличению потока туристов.

Нормы, регулирующие международный туризм в туристической индустрии, можно разделить на две основные группы:

- Международные правовые нормы в сфере туризма - Устав Всемирной туристской организации, туристические декларации, конвенции и соглашения;

- Нормы отдельного государственного национального законодательства в сфере туризма - нормы законов и правовых актов, касающихся туризма.

Нормы международного и национального права в сфере туризма Правовой статус объектов туристических отношений, основные направления туристической деятельности, виды туристических услуг, основные принципы межгосударственных отношений в сфере туризма, виды межгосударственных отношений, важные направления государственной политики, полномочия государственных органов, права и обязанности туристов, определяет и регулирует виды ответственности за нарушение международных и национальных правовых документов в сфере туризма, организационно-правовые гарантии безопасности туристов [3. с 267].

В то же время есть недостатки и проблемы в развитии туристической инфраструктуры на местах [4. с 62]. Естественно, что цель не может быть достигнута, работая в одном направлении в сфере развития туризма. Транспортные средства, дороги, отели, рестораны, оздоровительные центры, современные информационные и коммуникационные технологии, безопасность, чистота и благоустройство должны быть хорошо налажены, чтобы турист мог интересно путешествовать и отдыхать. Культура местного населения, торговые точки, банковские и другие услуги должны быть организованы на высоком уровне и качестве. Очевидно, что параллельное

развитие вышеперечисленных услуг важно для стремительного развития туризма [5. с 316].

В целях развития индустрии туризма в мире, дальнейшего увеличения ее социально-экономического значения и доли в экономике особое внимание уделяется современным научным исследованиям, которые закладывают основу для эффективного развития туристического рынка. Изучение методологических, методологических и практических аспектов данного вопроса в части выявления особенностей и тенденций развития туристического рынка в условиях инновационной экономики и совершенствования организационно-экономического механизма его эффективного развития актуально сегодня.

Пути развитие туризма и туристической индустрии; обеспечение прав граждан на отдых, свободу передвижения и других прав во время путешествий; рациональное использование и сохранение туристических ресурсов; совершенствование нормативной базы в сфере туризма; создание условий для туризма (экскурсий) для детей, молодежи, инвалидов и малообеспеченных слоев населения; привлечение инвестиций для развития туристической индустрии; создание равных возможностей для субъектов предпринимательства в сфере туристических услуг; обеспечение безопасности туристов, защита их прав, законных интересов и имущества; организация и развитие научного сопровождения в сфере туризма; подготовка, переподготовка и повышение квалификации кадров; такие вопросы, как улучшение сотрудничества с зарубежными странами и международными организациями [6. с 75].

Другой источник в области туризма, Манильская декларация о мировом туризме (1980 г.), заявляет, что туризм - это международно-правовое явление, его положительные результаты, энтузиазм людей по поводу туризма, необходимость принятия государствами мер по устранению препятствий на пути развития туризма, особое внимание уделяется важности сохранения и развития, миротворчества и взаимопонимания.

Гагская декларация по туризму, принятая на Межпарламентской конференции по туризму в 1989 году, важна, поскольку она отражает основные принципы международных отношений в сфере туризма. Согласно Декларации, к этим принципам относятся: сотрудничество в сфере туризма, взаимопомощь в различных сферах, сближение государств; что туризм может быть эффективным инструментом содействия социально-экономическому росту всех стран; необходимость защиты окружающей среды и туристических ресурсов; обеспечение путешествий и безопасности людей; упрощение

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туристических формальностей и повышение качества туристических услуг; обеспечение безопасности туристов; сотрудничество между государствами в борьбе с терроризмом; предоставить широкие полномочия органам, уполномоченным управлять сектором туризма, осуществлять соответствующую национальную политику и международное сотрудничество.

Осакая декларация по туризму, принятая на Всемирной министерской конференции по туризму 1994 года в Осаке, Япония, подчеркивает растущее значение международного туризма и отношения между туризмом, роль правительств и международных организаций в сфере туризма, важность развития туристической индустрии, влияние международного туризма на общество и окружающую среду, мир на Земле [6].

Признавая положения вышеупомянутых международно-правовых документов в качестве полноправного члена Всемирной туристской организации, Узбекистан начал внедрять их в свое национальное законодательство и создал национальную правовую базу в области туризма с учетом их требований. В частности, 20 августа 1999 года был принят Закон Республики Узбекистан «О туризме».

Конечно, в Узбекистане показатель заграничных намного ниже, чем в развитых странах. Наряду с указанными маршрутами необходимо развивать различные формы туризма, основанные на природном, экономическом и историческом потенциале республики.

Поэтому, исходя из уникального природного, экономического, исторического и культурного потенциала регионов страны, развитие следующих форм туризма, инвестирования, создание свободных экономических зон способствовало росту отрасли;

- религиозный (паломнический) туризм. Богатство нашей страны религиозными памятниками, тот факт, что исторически ислам является одним из наиболее развитых регионов, позволяет нам успешно развивать этот вид туризма. Сегодня основной целью многих туристов из мусульманских стран, таких как Малайзия, Индонезия, Пакистан, Саудовская Аравия, Афганистан, Турция, Объединенные

Арабские Эмираты, является посещение и знакомство с религиозными памятниками в нашей стране;

- этно-ностальгический туризм. Мы знаем, что многие люди, когда-то жившие в Узбекистане или их потомки, сегодня живут в разных странах мира (Саудовская Аравия, Турция, страны СНГ, Израиль и другие). Это создаст благоприятные условия для развития данного вида туризма в стране, откроет новые туристические маршруты;

- Экскурсионно-познавательный (исторический) туризм. Этот вид туризма может быть развит в древних городах нашей страны - Ташкенте, Бухаре, Самарканде, Хиве, Шахрисабзе. Здесь основное внимание должен быть направлен на знакомство туристов с объектами монументальной архитектуры, историческими памятниками;

- археологический туризм. Эту форму туризма целесообразно развивать в таких городах, как Термез, Кува, Хорезм, где туристов познакомят с археологическими находками, участие в реставрационных работах обеспечит содержательное путешествие;

- рекреационный туризм. Этот вид туризма имеет рекреационные и оздоровительные цели. Он отличается от других видов туризма тем, что туристы остаются в одном городе надолго, количество маршрутов невелико. Также в этом виде туризма широко используется воздушный транспорт, особенно чартерные рейсы. Наличие лечебных подземных и минеральных вод в Узбекистане создает благоприятные условия для развития рекреационного туризма (Ташкент, Джизакская области, Ферганская долина);

Одним словом, Республика Узбекистан в настоящее время налаживает и развивает отношения с международными организациями и зарубежными странами в сфере туризма, увеличивая приток туристов в нашу страну, создавая все условия для туристических услуг, повышая качество и культуру услуг, обеспечивая безопасность туризма, туризм. была создана на основе нормативно-правовой базы, регулирующей организацию и развитие отрасли, взаимосвязь с обучением персонала в данной сфере.

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## TRANSMISSIBLE CHARACTERISTICS OF COMMUNICABLE DISEASES AND MEASURES ON FIGHTING AGAINST THEM

**Abstract:** "Pindin ulcer" (also known as Cutaneous leishmaniasis or skin leishmaniasis) occurs in some regions of Central Asia, and due to the establishment of the triad chain (causative agent, carrier and source of disease - the reservoir), its specific active and passive natural foci are formed. Zoonotic skin leishmaniasis is an invasive disease that is in the line of transmissible diseases, the naturally occurring areas of which have long been formed in our country, mainly between the Amudarya and Syrdarya rivers. Naturally, the protected and gray lands to be reclaimed in Uzbekistan are directly related to the natural reservoirs of zoonotic skin leishmaniasis, because rodents, which are the source of the disease, have occupied exactly these areas. Observations confirm that rodents are common in protected and gray areas, of which large sand mice play a major epizootiological role as a source of disease. Even now, the occurrence of the disease and the presence of active reservoirs in a number of regions requires an in-depth study of the population composition of sand mice and the epizootic processes associated with them, as well as the development of measures to prevent zoonotic skin leishmaniasis.

**Key words:** transmissible disease, triad, cutaneous leishmaniasis, rodents, parsella, bioecology.

**Language:** English

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### Introduction

Currently, the field of transmission of zoological research, founded by academician E.N. Pavlovsky, is developing, and one of its priorities is to study the regional distribution of invasive diseases, the sources of disease, and the development of preventive measures in natural foci of disease [2,6,8,12].

It is known that zoonotic cutaneous leishmaniasis is an invasive disease; the transmission is directly related to the habitats of mice, which are the source of the disease in the steppe. In Uzbekistan, the natural foci of the disease are in areas between the Amudarya and Syrdarya rivers, in Bukhara,

Kashkadarya, Surkhandarya, Syrdarya, Jizzakh, Navoi regions, in Karakalpakstan, Central Fergana and other places.

According to the scientific sources [4,5,6,9, 13] that they can be divided into the following types: Lower - Surkhandarya natural-geographical region - Surkhandarya, Termez natural foci; Lower - Zarafshan natural-geographical region - Bukhara natural foci; Lower - Kashkadarya natural-geographical region - Kashkadarya natural foci; Lower - Amudarya, Ustyurt, Kyzylkum natural-geographical region - Karakalpak natural foci; Mirzachul natural geographical region - Syrdarya,

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Jizzakh, Forish natural foci; Natural-geographical region of Fergana valley - Central Fergana natural foci (Central Fergana natural foci is called autonomous foci) [1,3,4]. Severe epidemiological conditions among the population were observed in the reclamation of the Karshi, Mirzachul, Bukhara, Surkhansherabad deserts, and coming today, new natural foci have been added to these lines.

The above-mentioned natural foci, which are being reclaimed at a high rate, are active foci, because the level of population proximity to natural foci is very high. The Central Fergana natural foci can be considered passive, extinct natural foci, as the population of sand mice in this region is declining from year to year under the influence of anthropogenic factors.

The epidemiological status of each natural foci usually results from the degree to which the population interacts with the foci.

Based on regional circumstances, it may be noted that there is an epizootic process in nature, but there may be areas where humans have not become members of the triad chain or where there is an epizootic process in mice but no epidemiological situation has occurred. This is, certainly, the question of to which level the triad chain rodents in the parasitic system (the source of the disease, mainly *Rhombomys opimus* L.), the scapulae (carriers *Ph. Papatas*), or the causative species *Leishmania tropica* are mutually formed.

Among the species of rodents associated with the parasitic system, mice play a key role, and the entire life cycle of the parasite occurs primarily within local populations. Prolonged historical development has led to the division of the distribution areas of mice, the formation of independent populations, and the diversity of areas occupied by populations [7,10, 11,12].

Observations show that the natural "diffuse" distribution of sand mice in the natural foci of Mirzachul and Fergana valleys, where large species of mice are formed, has changed under the influence of anthropogenic factors, creating ribbon-like" or "island-like distribution types around collectors and the slopes of the railways. In some places, the natural foci were mixed with the local settlements and formed a "mosaic" type of distribution.

During the year, two interrelated stages of the epizootic process are observed in the above-mentioned natural foci:

- a) active (from late April to the second half of October),
- b) passive (October - April).

During the active period, all parts of the triad chain are present, there is an increase in the number of scapule, mice, and the epizootic process intensifies. Pathogens also increase in number during this period and begin to occur in both of the organisms. This period is epidemiologically dangerous for humans,

and the disease is more common during this period. In the second period, a decrease in temperature leads to a sharp decrease in the number of winged scapulae, and the incidence rate also decreases spontaneously. According to our observations, the population of *Rhombomys opimus* L. consists of individuals of different ages: juvenis, subadultus, adultus, senex, and the beginning of the epizootiological process takes place primarily in the age groups of juvenis and subadultus. Of the 464 juvenile groups examined, only 12 were found to have 2.6% typical leishmaniasis. Among them, morphologically asymptomatic cases, meaning no leukemic bulges in the ear aurelica found, but young individuals involved in the epizootic process were also reported. The juvenis group of mice moves from mid-June to the next large number of subadultus ages, among which the morbidity was 13–38%. Over the following months (September, October) the morbidity rate increases to 67-85%. They go through the first winter intermittent epizootic period and emerge in the spring into adultus age. Naturally, their number decreases slightly, passing through two, three-years interval epizootic periods, becoming a very small number of surviving senex groups, but the morbidity rate is 80-95%.

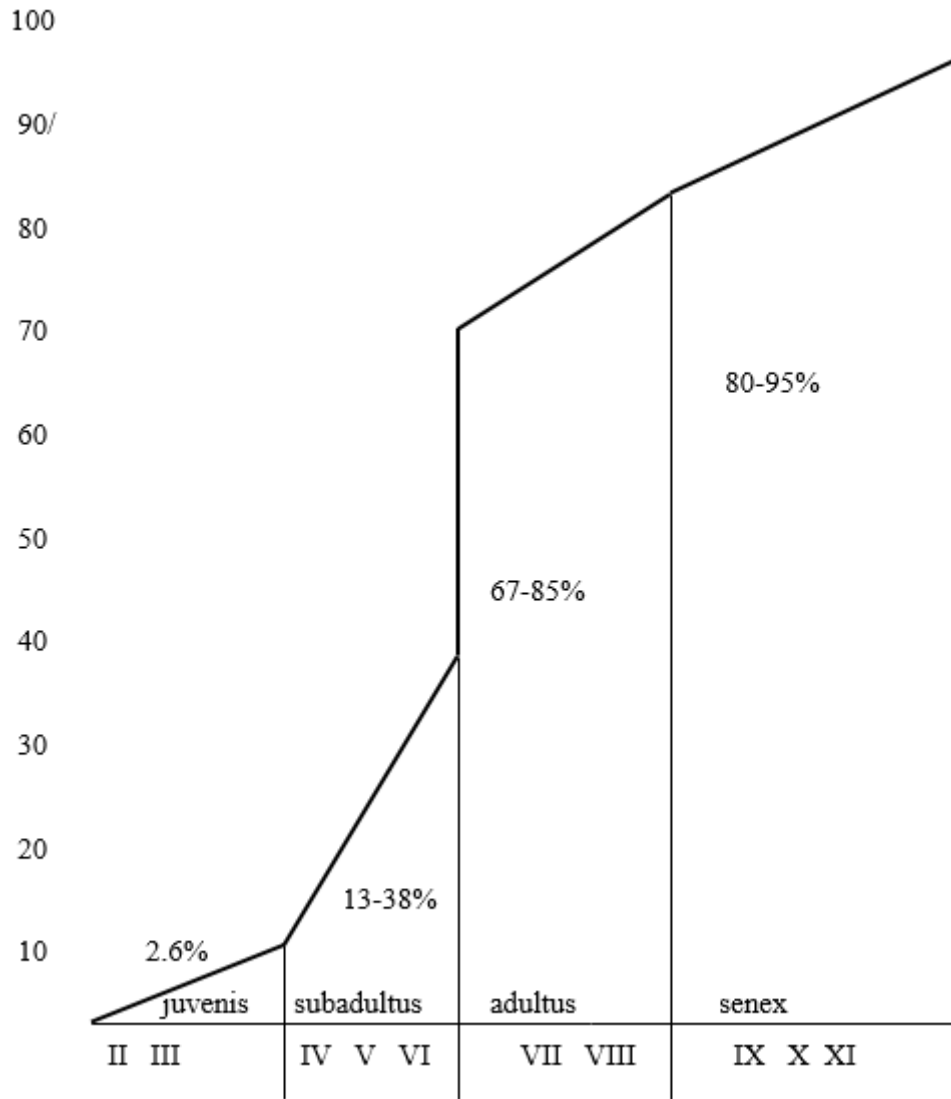
The fig-1 indicates that subadultus and adultus groups in the population play a key role in the survival of the zoonotic cutaneous leishmaniasis pathogen *L. major* between long epizootiological periods

Scaptopars, the next link in the triad chain, play a key role in the development of zoonotic skin leishmaniasis. In active foci of the disease, only one type of *Ph. daisies* (4.2-24.7%) were found to have epidemiological and epizootiological significance. Among the formed local populations, *Ph.papatas* in the populated areas, and *Ph. caucasicus* in the colonies of mice were studied to dominate. In recent years, pathogenic strains isolated from birds have been shown to differ from each other in terms of their virulence, with strains being infectious only in terms of virulence against *L. major* humans. In recent years, pathogenic strains isolated from sand mice have been analyzed to differ from each other in terms of their virulence, among strains only *L. major* being infectious for humans [4,5,1, 3]. All of these indicate the complexity of the triad chain in the microenvironment that causes zoonotic skin leishmaniasis. The evolution of the parasitic system of protected and gray soils, which is accelerated by assimilation, is mainly associated with a large community of large sand mice, which are considered natural foci as a source of disease, so disease control measures should be more focused on them. The fight against zoonotic skin leishmaniasis, which is considered a transmissible disease, requires that the focus be on breaking the epizootic chain present in the natural foci, eliminating the source of the disease, and exposing the observer.



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**Fig-1. An epizootic indicator of zoonotic skin leishmaniasis**



**Rhombomus opimus L.**

Mechanical and chemical methods in the fight against zoonotic skin leishmaniasis, including the use of cereals treated with toxic substances (zinc-phosphide), zoocoumarin paste, toxic gases (chlorpicrin, cyanplav), spray of mixing car exhaust with DDG and GXTsG insecticides, anti-disinfection methods, treatment of people infected with leishmaniasis with particularly effective methods, and so on. Due to their application in practice, positive results have been achieved in some regions, and epizootiological and epidemiological conditions have been reduced temporarily. Currently, Turan is low-lying area, and the above-mentioned zoonotic skin leishmaniasis requires the presence of active and passive natural foci, a deeper study of epizootic processes occurring in rodents, and the development of control measures. In the fight against rodents, along with zinc-phosphide chemicals, racumin, ratinin,

zoocoumarin drugs, which have a cumulative effect, were also tested.

First specie - meals made from a mixture of 4% (40 mg / kg) "zinc phosphide", 93-84% wheat grains, 2-3% vegetable oil, 1% sugar solution;

Second specie - drug "racumin" or "ratindan" and crushed corn kernels in the ratio (1:19) and 5% (1: 1) sugar solution;

In the third specie, it was found that the use of "zoocoumarin" paste as a food by rubbing it on black nougat gives good results.

Based on the above considerations, it should be noted that in areas where rodents are the main source of disease, it is necessary to use zinc-phosphide drugs with strong effects, but their full use is not advisable, as they pollute the soil and aquatic environment.

**Materials and methods**

The research material is the areas where zoonotic skin leishmaniasis is prevalent, which were analyzed

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on the basis of scientific sources. The disease-prone areas were studied on the basis of a map, based on landscape-specific epizootiological processes arising only from natural-geographical features, and the distribution of sand mice, which are the source of the disease.

Regions were conditionally divided into active and passive natural foci, based on indicators of people with leishmaniasis and epizootics. General zoological methods were used to determine the number and distribution of species. *Rhombomus opimus* L.-population composition, morphological characteristics of individuals were divided into groups juvenis, subadultus, adultus, senex on the basis of changes in weight, bones, condition of teeth, horny layer at the base of the tail and heel parts. In determination of the epizootic process, temporary preparations were used (smeared with Romanovsky-gimza dye) rubbed from the bulging leishmaniasis in the ear aurelica. In the Juvenis group, the absence of leishmaniasis in the supraspinatus, i.e., asymptomatic cases, was also analyzed on the basis of drugs in the same way.

### Results

In the field of rodent control in the Andijan region, as a result of systematic application of this

method of control, 85-90% efficiency was achieved. It is recommended to use drugs that have a cumulative effect in schools and kindergartens. Although the method of physical control of rodents is not one hundred percent effective, they can be used effectively in kitchens and warehouses in populated areas. In areas where deratization is not carried out, the use of marbled polecat, steppe polecat, weasel, which are natural relatives of rodents, also gives good results in biological control.

### Conclusions

The first important requirement for the organization of effective control of rodents is to maintain the sanitary and ecological condition of the environment at a high level and prevent the feeding, reproduction and spread of the species;

The second requirement is the constant control of the timely collection and disposal of waste in specially designated areas of apartments, enterprises and institutions;

The third requirement is the systematic and, most importantly, quality implementation of regional deratization measures.

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## PSYCHOLOGICAL CHARACTERISTICS OF MOVEMENTS OF PRIMARY SCHOOLCHILDREN

**Abstract:** The article deals with psychological basis of physical training of primary schoolchildren, and the role of national physical training in the process of educating children as well. There is information on the development of the child's beliefs, maturity, communication, the formation of independent behavior, initiative and the desire to overcome obstacles in physical education through national folk movement games.

**Key words:** Physical training, psychological basis, relationships between people, practical skills, psychology of child, physical prearrange.

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### Introduction

Nowadays a great attention is being paid on the rational system of training for the development of physical culture and sports in the Republic of Uzbekistan. Therefore, the goals and objectives of physical education are based on the decisions of our government on physical culture, and sports. The goal of physical education in our country is to prepare a healthy, mentally active and creative person for life. This goal is a necessary task for all institutions and organizations engaged in physical culture in Uzbekistan.

A person needs to understand the need for physical education and sports in order to train himself physically and to shape his health on the basis of a certain system of physical training that he diligently enjoys. The comprehensive development of the physical abilities of the younger generation is carried out in the process of physical education, which is an integral part of upbringing. The purpose of physical education is a long-term, organized pedagogical process, consisting of educating the builders of society healthy, cheerful, well-developed in all respects, ready to work and defend the Motherland. The need to collect and implement national action games in the solution of the tasks facing physical education, their

rational use is clearly demonstrated today. The important task before us, which has both theoretical and practical significance, has placed a great responsibility on physical education, which educates the younger generation in a healthy and harmonious way. Therefore, our goal is to carefully search for, develop and implement ways to pass on to the next generation the national games created by our people for thousands of years.

Upbringing has always played an important role in society, communicating and inheriting between different generations. The purpose, tasks, content, form and methods of education have changed over time. These changes are closely related to the relationships between people. Therefore, in education it is necessary to pay attention to the formation of a mature person who is ready to defend the motherland, to be workhard, to be active in social activity, in general, to be fully developed in life. In order to successfully solve these tasks in the process of physical education, it is necessary to understand the specific features of the content, means, and methods of each of the interrelated forms of education.

It was necessary to take into account these peculiarities in the education of the physical qualities of primary school students in the national movement

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games. Of the age periods accepted in psychology, the most important for us is the small school age. Each age group has a certain level of physical and mental development.

Studying at a small school age changes a child's entire lifestyle and places new demands on him. Because in kindergarten, children are mainly focused on the development of speech, the formation of moral norms. Specially organized play activities play an important role in their upbringing. Games are used for didactic education and teamwork to develop the child. At a young school age, against the background of the general maturation of the organism, the sphere of movement of children develops rapidly. This period is very convenient for active participation in physical education.

In this regard, the use of national folk movement games, which develop exactly these features of the child, accelerates the achievement of the intended goal in education. The intensity of physical development requires rapid growth of the skeleton, the formation of curvature of the spine, the developmental characteristics of the cardiovascular system. The whole life cycle of the child is rationally organized. Knowing the factors that affect the development and change of the psyche of children of different ages, the factors that positively affect their moral and physical development, their effective use has become extremely important for teachers, physical education specialists. [1.125p]

By conducting physical education classes, taking into account the mental characteristics of each student's age, the impact on their consciousness, spirit, creates a timely self-awareness. The earlier a child wakes up with a sense of self-awareness, the sooner a personal point of view, a sense of entitlement, and an assessment of mental and physical capabilities will emerge.

Features such as belief, behavior, communication, the formation of independent behavior, initiative and the desire to overcome obstacles can be nurtured in the child through national folk movement games, in which it is desirable to motivate them based on the characteristics of youth psychology.

The Uzbek national movement plays an important role in the spiritual development of children. In general, it is known that many psychologists and educators have made valuable comments about the importance of games. Educators and psychologists around the world have proven in different ways at different times that play plays a big role in shaping important aspects of everything, from the simplest mental process to the most complex.

Playing games is a means of reflecting reality for children. This reality is more interesting than the being that surrounds the child. The fun of the game is that it's easy to understand. Just as activity and service are

important in an adult's life, play can be just as important in a child's life.

The development of the content of the game is reflected in the deeper penetration of the child into the essence of adult life and activities, changes in attitudes to the surrounding events, as well as the content of the game increasingly reflects the conditions, life of members of society. Therefore, the growth of play ability in children does not occur spontaneously, but as a result of the influence of adults, educators, acquaintance with the environment, organization of excursions, explanation of the essence of interpersonal relationships. [2.316p]

Substitutes for the lives and activities of adults are the material basis for expressing their actions in a generalized way. Therefore, the development of a child's movement in play activities is more dependent on the content of the game. Because the more concise and generalized a child's behavior is, the more they move away from reflecting the content of an adult's activity. Consequently, it shifts to putting into practice a person's relationship to things and to each other, so it tends to accurately express the adult's attitude when dealing with things.

The focus of any game and play activity is the opportunity for the child to reflect and repeat the activities of adults, their interactions, their behavior in a unique way. Accordingly, play has a social significance, allowing the child to learn the valuable knowledge, practical skills, abilities and habits created by mankind over the centuries, the creative wealth of the people, and thus bring it to the essence of interpersonal communication.

Play plays an important role in a child's mental development. When talking about the impact of play on the development of movement in children, it should be noted that, first of all, the organization of play itself creates the most favorable conditions for the growth and development of the child's character. Second, the reason and feature that play affects a child's movement is that the subject acquires complex movement skills not directly during play, but through direct learning.

The motivating factor for a child to play is his or her perception of adults and their interpersonal relationships and their desire to try them out in their personal activities, as well as their desire to interact directly with their peers who play as a team. From this it can be concluded that: a) in play activities the child is eager to demonstrate the full range of actions, to show how to perform them; b) then tries to generalize and reflect all the behaviors. [3.140p]

It is really possible to prepare a child for great things by engaging in games. Playing game is not just fun for children, but an important tool to help them develop their strength and ability.

The activities of a child from infancy to preschool age grow to a level of self-control independent of adult-led activities. However, since all

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the conditions mentioned above are not mutually exclusive, they cannot serve as the basis of any game, and accordingly, for a certain period of time, the game activity takes place depending on the objects. Psychologists say that the game does not happen by itself, there must be at least three conditions for this:

- a) The child's mind has a variety of impressions of the reality around him;
- b) The existence of various forms of means and methods of educational influence;
- c) The child's frequent interactions and interactions with adults.

In this way, the indirect influence of adults on the future plays a role. This objective condition is not enough to organize and create the National People's Movement itself, but to change the relationship between the two parties. Otherwise, independence will not be achieved. It has long been known that our ancestors also inherited a lot of willpower, independence, and a lot of goals. It is important for adults to be more demanding of themselves and to be able to act independently. Similarly, the measures form the learning of independence and the organization of independent activities. Preschoolers gradually enter the world of adult life and activity, with positive emotions, courage, and courage in the past. Being a schoolchildren, he or she independently paves the way for adults to enter life and work. It reflects a willingness to participate in interpersonal relationships in all spheres of life and activity. Therefore, the national movement of the people has created a new relationship between the big and the big, and in this relationship, the national characteristics: valuing one's country, respecting it, building it up. The activity of the house is social with its content and essence. National Movement Games are a vivid example of independent activity, through which the content of the games gets to know the lives of those adults. It should be noted that in the relationship between the conditions of the game and the movement of the object, the main focus is often on the movement with objects, in which object games, for example, with stones, coats, skullcaps, etc., play a leading role in children's movement. However, there is a role to play in games, which should not be overlooked. This can be the case for games that are scheduled to be delivered from one object to another. In the process of using national action games, it is important to take into account the unique characteristics of the elementary school students:

1. The activity of the adult layer, their relationship to the subject, and their interest in mutual exchange, relationship.
2. Children's mobile games reflect the most expressive, intuitive aspects of the environment around them.
3. In national action games, the child is able to exercise his or her will in the same way as adults, in

the same way as when he or she feels that he or she is living under the yoke.

We know that one group of students learns materials faster, the second group learns them later, and the third group learns them much later. In addition, general physical fitness is of great importance in mastering the study materials. A child's physical fitness can be influenced by economic conditions: place of residence, financial status of the family, number of children, education of the parents, worldview and their place of work, title and others. Observations and collected data show that children's physical development and readiness, their psyche, outlook, speech, activity in the process of training are closely related to the factors described above.

There are also a number of tasks in the physical education of students that are addressed appropriately in the process of learning and teaching national movement games. These tasks can be successfully accomplished due to the impact of the entire physical education system on children. This requires the whole pedagogical team of the school to work together, to use different forms and methods of organizing lessons in the school, especially the national action games, the integrity of all means.

Children will be able to memorize and recall more speech in games than in other forms of the lesson, which will help them to unlock the voluntary memory feature more deeply. This leads to the following conclusion:

1. Play is the process of choosing and playing a specific role by a child and requires remembering a lot of information.
2. Therefore, the conscious goal of repeating the behavior appears earlier in the child and is easier to achieve.

Play not only improves cognitive processes, but also has a positive effect on a child's behavior. Preschoolers, both elementary and high school students, can develop their behavioral management skills through games. This is because behavioral skills can be acquired earlier and easier in national action games than in goal-oriented training. This factor finds its brightest expression, especially in preschool children, as a feature of adolescence. In young school-age children, the ability to self-manage their behavior is almost equal in play activities as well as in other contexts. Sometimes they can even achieve a higher score than in the game in certain situations, for example: during a race.

### Conclusion.

Fostering positive (solidarity, discipline, humility, kindness) and spiritual qualities (honesty, fairness, friendship, cooperation, ability to work with the times, ability to perform tasks responsibly), as well as willpower in children's movement during folk games (courage, perseverance, self-confidence,



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perseverance, endurance, etc.) the best conditions and opportunities are created.

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## ASSESSMENT OF METHODOLOGICAL APPROACHES TO THE DEVELOPMENT OF CORPORATE GOVERNANCE IN THE TEXTILE INDUSTRY OF UZBEKISTAN

**Abstract:** This article examines the following models and methods of world practice for assessing the effectiveness of corporate governance: S&P GAMMA rating, GMI rating system, TCL Board analysts rating, Deminor rating, RID-Expert RA national rating, IKPU CORE rating and others. The methods of corporate governance of local economists such as M. Khamidullina, D. Suyunova and Begmatova are considered. And also the indicators that affect the assessment of the effectiveness of corporate governance were considered.

It is expedient to use the SPSS 24 and MINITAB 10 programs, which are currently the most convenient programs for constructing the regression equation. Using statistical indicators of the dynamics of changes in the indicators selected above in 2017-2021, the regression equation was determined.

**Key words:** S&P GAMMA, GMI, RID-Expert RA, IKPU CORE rating, performance evaluation, evaluation criteria, regression equation.

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### ОЦЕНКА МЕТОДОЛОГИЧЕСКИХ ПОДХОДОВ К РАЗВИТИЮ КОРПОРАТИВНОГО УПРАВЛЕНИЯ В ТЕКСТИЛЬНОЙ ОТРАСЛИ УЗБЕКИСТАНА

**Аннотация:** В данной статье рассмотрены следующие модели и методы мировой практике для оценки эффективности корпоративного управления: рейтинг S&P GAMMA, рейтинговая система GMI, рейтинг аналитиков TCL Board, рейтинг Deminor, национальный рейтинг РИД-Эксперт РА, рейтинг IKPU CORE и другие. Рассмотрены методики корпоративного управления местных экономистов как М. Хамидуллина, Д.Суюнова и Бегматовой. А также были рассмотрены показатели, влияющие на оценку эффективности корпоративного управления.

Целесообразно использованы программы SPSS 24 и MINITAB 10, которые в настоящее время являются наиболее удобными программами для построения уравнения регрессии. С использованием статистических показателей динамики изменения, выбранных выше показателей в 2017-2021 гг. было определено уравнение регрессии.

**Ключевые слова:** S&P GAMMA, GMI, РИД-Эксперт РА, рейтинг IKPU CORE, оценка эффективности, критерии оценок, уравнение регрессии.

#### Введение

В процессе углубления социально-экономических реформ в Узбекистане большое внимание уделяется дальнейшему развитию

национальной экономики путем проведения структурных преобразований, модернизации предприятий и объединений на основе различных форм собственности и управления. В частности,

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приняты меры по повышению роли и значимости наблюдательных советов, общих собраний, ревизионных комиссий в деятельности акционерных обществ, обеспечению участия миноритарных акционеров в процессе управления, расширению доступа к информации для всех акционеров и инвесторов. Указ Президента Республики Узбекистан от 24 апреля 2015 года ПФ4720 «О мерах по внедрению современных методов корпоративного управления в акционерных обществах» и Кабинета Министров Республики Узбекистан от 16 октября 2006 года «О мерах. Внедрить в акционерных обществах современное корпоративное управление «Постановление № 215» О мерах по обеспечению эффективного управления и надлежащего учета государственного имущества» с внедрением самых передовых достижений на основе научного и практического анализа современной практики корпоративного управления в России. акционерные общества, коренная реорганизация управления совместная организация диагностики системы корпоративного управления на основе обобщения передового зарубежного и отечественного опыта, разработка инструкций и внутренних корпоративных документов по совершенствованию системы корпоративного управления признана приоритетной в нашей стране. В целях реализации приоритетов модернизации нашей страны и либерализации всех сфер жизни Президент Республики Узбекистан Ш.М. Цели, изложенные в Указе Мирзиёева от 7 февраля 2017 года «О Стратегии дальнейшего развития Республики Узбекистан», включают институциональные и структурные реформы, направленные на сокращение государственного участия в экономике, защиту и укрепление прав частной собственности, продвижение малого бизнеса и частного предпринимательства. В процессе продолжения внедрения современных стандартов и методов корпоративного управления последовательная реализация усиления роли акционеров в стратегическом управлении предприятиями будет играть еще более важную роль. В связи с этим актуален вопрос совершенствования корпоративного управления в акционерных обществах. Потому что быстрое внедрение современных механизмов эффективного управления для успешного развития корпоративного сектора в национальной экономике - требование времени. Низкий уровень корпоративного управления - одна из основных причин трудностей с привлечением инвестиционных ресурсов в акционерные общества и одна из стратегических целей развития бизнеса. Поэтому в последние годы важно изменить методологические подходы к процессам

корпоративного управления. В мировой практике для оценки эффективности корпоративного управления используются следующие модели и методы: рейтинг S&P GAMMA, рейтинговая система GMI, рейтинг аналитиков TCL Board, рейтинг Deminor, национальный рейтинг РИД-Эксперт РА, рейтинг IKPU CORE и другие. В Узбекистане был проведен ряд исследований для определения качества и уровня эффективности корпоративного управления. GAMMA. Методология оценки корпоративного управления (GAMMA) рейтингового агентства Standard & Poor's важными составляющими являются: 1) влияние акционеров; 2) права акционеров; 3) корпоративная система прозрачности, аудита и управления рисками; 4) деятельность совета директоров, стратегические процессы и эффективность системы вознаграждения.

GMI. Методология GMI (Governance Metrics International) для оценки корпоративного управления включает такие ключевые элементы, как законодательство о составе совета директоров, финансовую прозрачность и внешний контроль, права акционеров, возможность контролировать структуру собственности через рынок, полномочия исполнительные органы и наличие кодекса корпоративного поведения.

### Методы исследования

Методологической основой исследования являются фундаментальные законы экономики, концепции, законы и принципы теории управления, научные труды, а также работы ведущих зарубежных и отечественных ученых в области корпоративного управления, материалы по экономике и менеджменту в периодической печати. В процессе исследования также использовались такие научные методы исследования, как экономическая интерпретация, системный и комплексный подход, анализ и синтез, функциональный подход. Метод экономической интерпретации часто используется в науке для изучения сущности определенных экономических концепций или идей, чтобы дать экономическую интерпретацию концепциям в соответствии с целями исследования. В исследовании также был использован метод уравнение регрессии было построено с использованием программ SPSS 24 и MINITAB 10.

### Результаты исследования

Теоретическое изучение исследовательской работы, проведенной для оценки эффективности корпоративного управления, позволяет разделить ее на такие методы, как количественные и качественные. В группу качества в основном входят сравнительные (сравнительные) методы оценки рисков и рисков корпоративного

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управления. Количественные группы, с другой стороны, включают методы, используемые в основном для анализа корпоративной деятельности.

Эффективное корпоративное управление — это не только формирование организационной структуры, во многом соответствующей выбранной стратегии, но и достигается за счет выбора системы корпоративной стратегии, а также организационно-экономической формации, обеспечивающей разработку мер по ее реализации.

Социально-экономический аспект бизнес-процессы корпоративных структур, научно-технический прогресс, организация труда и стимулы, формы и методы, прямо или косвенно влияющие на сложную систему взаимоотношений, возникающих в других подобных процессах. Теоретико-методологические аспекты организационно-экономического механизма включают совокупность концептуальных подходов к разработке этого механизма, его вариантов и сценариев, систему выбора показателей (параметров). Методологический аспект процедуры расчета показателей (параметров), характеризующих результаты, полученные при практическом применении организационно-экономического механизма управления. К правовым аспектам данного механизма относится введение нормативно-правовых документов, связанных с реализацией организационно-экономического механизма управления. Организационный аспект теоретические и практические вопросы, такие как создание руководящего органа и системы управления экономикой, формирование ее состава, выбор

форм, альтернативное распределение полномочий и ответственности, контроль и регулирование. Местные экономисты провели много исследований, чтобы улучшить корпоративное управление. В частности, согласно методике Д.Суюнова рейтинг корпоративного управления определяется на основе 100-балльной шкалы по 3 группам критериев. Согласно методике М. Хамидуллина, национальный рейтинг уровня корпоративного управления определяется на основе 10-балльной шкалы по 10 основным группам показателей, включая параметры оценки. В исследовании Бегматовой уровень корпоративного управления включал 47 показателей, которые определялись по 7 критериям.

Эти методологии в основном нацелены на оценку практики корпоративного управления в определенной степени по отношению к стандартным принципам, а некоторые нацелены на сравнение эффективности механизма защиты интересов собственников.

Таким образом, эффективность корпоративного управления можно оценивать не на основе результатов, достигнутых акционерным обществом, а на основе критериев, отражающих существующие механизмы управления и сопоставляющих их с требованиями международных стандартов (таблица 1). Одним из направлений совершенствования корпоративного управления в акционерных обществах сегодня является повышение социальной ответственности бизнеса. Следовательно, в зарубежных исследованиях повышение социальной ответственности бизнеса рассматривается как важный фактор обеспечения положительного имиджа общества.

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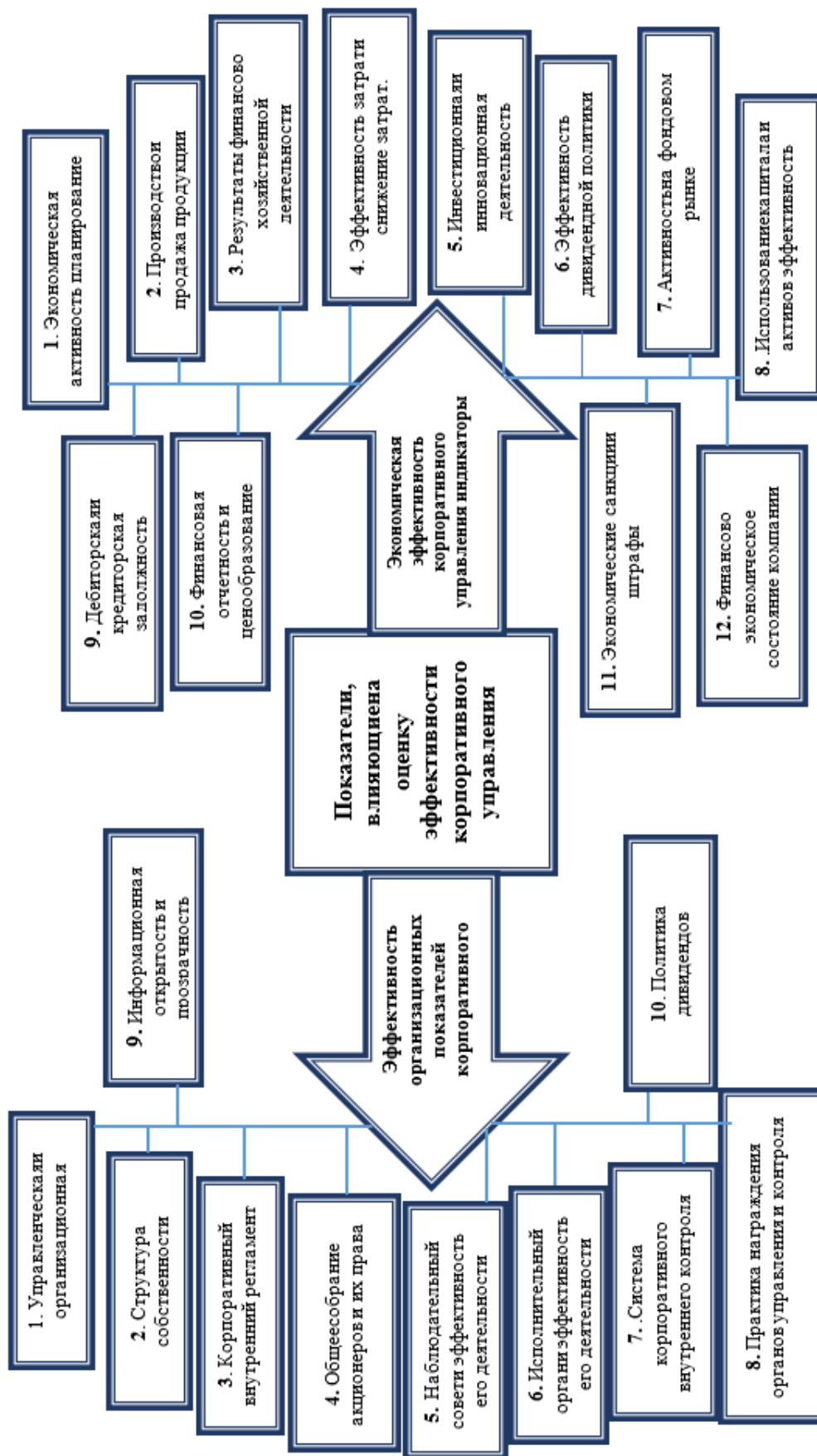


Рисунок 1. Показатели, влияющие на оценку эффективности корпоративного управления



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Для того, чтобы учесть эти аспекты в исследовании, были проанализированы нормативные подходы к участию аффилированных лиц в сделке. Согласно анализу,

участие аффилированных лиц в сделке необходимо для согласования миссии и целей акционерных обществ.

**Таблица 1. Критерии оценки уровня корпоративного управления на предприятиях**

	<b>Показатели</b>
<b>Деятельность наблюдательного совета</b>	1. Наличие системы управления рисками для АО
	2. Наличие споров между акционерами и органами исполнительной власти
	3. Доверие акционеров к наблюдательному совету.
	4. Наличие независимых наблюдателей в наблюдательном совете.
<b>Деятельность исполнительных органов</b>	1. Ответственность членов совета директоров за организацию деятельности структурных подразделений АО.
	2. Вовлечение сотрудников АО в процесс принятия решений, напрямую затрагивающих их интересы.
	3. Зависимость от размера заработной платы членов правления
<b>Политика дивидендов</b>	1. Наличие локальных нормативных актов, регулирующих дивидендную политику акционерного общества.
	2. Своевременная выплата дивидендов в АО.
<b>Открытость и прозрачность данных</b>	1. Публикация финансовой отчетности в СМИ.
	2. Провести не зависимый аудит финансовой отчетности АО.
	3. Наличие информации о несоблюдении рекомендаций Кодекса корпоративного управления со стороны АО
<b>Степень соблюдения принципов корпоративного управления</b>	1. Наличие внутреннего кодекса поведения АО.
	2. Доверие между участниками корпоративных отношений.
	3. Этические стандарты корпоративного поведения.
	4. Права акционеров
	5. Равное отношение к акционерам
	6. Задачи менеджмента
<b>Социальная ответственность</b>	1. Наличие (публикация) социального отчета АО.
	2. Наличие в АО программ охраны окружающей среды и ресурсо сбережения.
	3. Наличие внутреннего кодекса корпоративной этики, антикоррупционного законодательства
	4. Наличие программ развития и удержания персонала в АО.

Исходя из вышеизложенного, мы рекомендуем следующую систему оценки уровня корпоративного управления на предприятиях.

Эффективная система корпоративного управления позволяет более активно внедрять новые современные подходы в систему управления акционерными обществами. В частности: 1) совершенствование порядка проведения общих собраний акционеров, заседаний наблюдательных советов и исполнительных органов; 2) совершенствование системы прозрачности деятельности компаний и их сделок (совершенствование системы раскрытия информации) и внутреннего финансового контроля; 3) усиление роли наблюдательного совета в управлении компанией (включение независимых членов в наблюдательный совет, создание соответствующих комитетов при наблюдательном совете); 4) повысить подотчетность исполнительных органов наблюдательному

совету и общим собраниям акционеров; Кроме того, взаимоотношения между акционерами и исполнительной властью остаются одной из основных проблем в повышении эффективности акционерных обществ. Недостаточный потенциал профессиональных менеджеров, проблема отсутствия контроля в управлении, интеграция иностранных компаний, привлечение иностранных инвестиций, выход на зарубежные рынки и т.д. остаются серьезным препятствием. Выбрано в исследовательской работе исходные критерии были разработаны в соответствии с показателями.

Низкий уровень корпоративного управления является одной из важнейших причин трудностей с привлечением инвестиционных ресурсов в акционерные общества и развитием бизнеса. В то же время эффективность системы корпоративного управления не только увеличивает рыночную стоимость компании, но, в свою очередь, повышает ее конкурентоспособность на

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финансовых рынках, снижает стоимость кредитования и привлекает больше инвесторов.

В целях повышения общей эффективности производства, чтобы сосредоточиться на конечных результатах аппарата управления, необходимо принять дополнительные меры по совершенствованию структуры национальной экономики, для решения вышеперечисленных вопросов в текущей экономической политике. К ним относятся, помимо прочего, следующее:

- Переход мониторинга и анализа экономического развития и реформ с традиционных показателей роста производства и занятости (промышленность, сельское хозяйство, динамика инвестиций и др.) К структурным и качественным показателям (доля готовой продукции в экспорте, доля малых и частных предприятий), доля частного капитала в структуре инвестиций, сетевой, материальный потенциал, энергоёмкость и капиталоемкость при разделении частного сектора, производительность труда в новых и прежних секторах промышленности и. т. д.);

- ускорение развития частного сектора экономики, создание макроэкономических условий, стимулирующих инвестиции и

предпринимательство на основе новых низко капитальных источников и факторов экономического развития, в том числе улучшение его состава, снижение транзакционных издержек, увеличение распределения и эффективного использования материальных и финансовых ресурсов, создание других условий для активации внутренних источников экономического роста.

Необходимо научно и методологически обосновать национальную программу активизации структурных и качественных факторов роста, ускорить работу по формированию и использованию системы годовой производственной отчетности на основе системы национальных счетов. Об этом свидетельствует опыт передовых развивающихся стран мира и стран с переходной экономикой. Целесообразно использовать SPSS 24 и MINITAB 10, которые в настоящее время являются наиболее удобными программами для построения уравнения регрессии. С использованием статистических показателей динамики изменения, выбранных выше показателей в 2017-2021 гг. Было определено следующее уравнение регрессии:  
$$Y = 2,85E4 + 3,85E4 * t + (-1,1E4) * t^2 + 1,35E3 * t^3,$$
$$t = 1, 2, 3, \dots$$

**Таблица 2. Результаты критериального исследования адекватности регрессионной модели ВВП на душу населения**

Переменная	Коэффициент	Ошибка по умолчанию	t-статистика	Вероятность
b1	38536871	17327622	2,224	0,090
b2	-10969036	4346395	-2524	0,065
b3	1350781	318877	4236	0,013
C	28512,886	19149686	1,489	0,211
R-квадрат			0,996	
F-статистика			328754	
Вероятность(F-статистика)			0,000	

R<sup>2</sup> = 0,996 показывает, что 99,6% изменения ВВП на душу населения представлено моделью. Результаты таблицы показывают, что все параметры, выбранные для определенной модели, оказались значимыми при условии  $t < t_{jad}$  на уровне значимости 0,10. В заключение можно сказать, что надежность и адекватность модели (1) обеспечена.

По результатам прогноза, объем промышленной продукции будет иметь устойчивую тенденцию роста и в следующие 2020-2025 годы. Согласно прогнозным расчетам, объем промышленной продукции В 2025 году 2124640,5тысяча сум. Этот показатель в 6,5 раз выше, чем в 2019 году соответственно.

Новое исследование правового и экономического развития корпоративного управления в Узбекистане, основанное на причинном следственном анализе исторической

методики, позволило переопределить этапы реформы корпоративного управления, выявить ключевые особенности реформы корпоративного управления, выявить проблемы и недостатки на каждом этапе.

Слабые стороны текстильной промышленности Узбекистана включают устаревание ткацких станков, отсутствие квалифицированных инженеров и техников, слабую специализацию в производстве тканей, текстильных изделий, неразвитость отечественного производства тканей для шитья и трикотажа, низкий уровень производства волокна в некоторых регионах, управление качеством в соответствии с международными стандартами, количество введенных предприятий было небольшим. Для решения этих проблем было рекомендовано привезти современное оборудование для текстильных предприятий,

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обратить внимание на развитие системы подготовки инженеров и техников.

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## ATOMIC ABSORPTION DETERMINATION OF CHROMIUM IN KITCHEN SALT USING MACROCOMPONENT EXTRACTION

**Abstract:** The use of ultrasound (US) at determination of chromium in kitchen salt using macrocomponent extraction was investigated. It has been found that US using let us to increase the degree of chromium extraction and improve , metrologic characteristics of the obtained results at kitchen salt analysis. It was shown that the use of double-frequent US allows us to increase solubility of sodium chloride in hydrogen peroxide from 42 up to 98 % and to increase the degree of chromium extraction from 94% up to 98%.dispersing and mixing effects are the determining factors of the US action on co-precipitation concentration. The method of atomic absorption determination of chromium in kitchen salt using macrocomponent extraction has been developed.

**Key words:** atomic absorption spectrophotometry, Chromium, kitchen salt, ultrasound, metrologic characteristics.

**Language:** English

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### Introduction

Chromium is toxic biologically active element, The toxicity of Chromium depends on the forms of its existence. Hexavalent Chromium is the most toxic. However, according to the sanitary-anti-epidemic and sanitary-anti-toxicological rules, the norm is normalized in the kitchen only in general. But even

now there are no standard methodic to determine Chromium in kitchen salt, mineral waters brines. There are methodic to determine Chromium by extraction with hydrochloric acid and determination of the content of Chromium by atomic-absorption method. In this case, for the formation of

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acetylacetonate Chromium, the solution is boiled for 1 hour [1,p.14;2,p.120;3,p.117;4,p.47].

The purpose of this work is to develop methodics for of atomic absorption determination of chromium in kitchen salt with improved metrological characteristics.

### Experimental

#### We used the next substances and equipment to conduct the experiment

1. AAS-3 atomic absorption spectrometer (Capl Zeitz Jena company, Germany).
2. Personal computer.
3. Libra analytical VLP-200 (Russia).
4. Ultrasonic disperser UZDN - 1m with magnetic ultrasonic emitters from 18 kHz to 100 kHz.
5. Ultrasonic generator 24 – UZGI – K – 1,2 with piezoelectric ultrasonic emitters from 200 kHz to 2,5 MHz
4. Ash-free ash filters according to TU 2642-001-42624157-98
5. Laboratory glassware for DCT 1770-74.
6. Water distilled for DCT 6709-72.
7. Argon and helium
8. Chromium solution - 1, containing - 1 mg of Chromium in 1 ml. Prepared with the use of state standard samples.
9. Chromium, solution - 2, which contains 10.0 mcg of Chromium in 1 ml. Prepare by sampling 10 ml of solution-1 in a flask with a capacity of 1000 ml and bringing the volume of the solution in the flask with distilled water to the scale.
10. Chromium, solution-4, which contains 0.10 µg of nickel in 1 ml. Prepare by sampling 10 ml of solution-3 in a flask with a capacity of 100 ml and bringing the volume of the solution in the flask with distilled water to the scale.
11. AIU 6c shaker.
12. pH-meter pH-121.
14. NaCl, TU 6-09-3658-74

When analyzing only some of the substances for concentrating micro-impurities, the method of base formation can be used. Such substances include sodium chloride. It is known that sodium chloride dissolves in hydrogen peroxide at low temperatures (in the range from -5 to -10 ° C). To increase the solubility of sodium chloride in hydrogen peroxide and increase the speed of the process, we used the effect of ultrasound from the moderated ultrasonic dispensers of the dispenser. The atomic-observational value of Chromium was performed on the atomic-observational spectrometer AAS-3 (Germany). It was used distilled water, sodium chloride for spectral analysis, hydrogen peroxide 90%. The technique of the experiment was as follows.

The analyzed samples were put in flasks on 1000 ml, cooled and treated by ultrasound of 14 ... 47 kHz frequency for 20-25 sec. Then the concentrate was dissolved in hydrochloric acid (1: 1), quantitatively

transferred to a test tube and the volume of the solution was reduced to 10 ml. The concentrate was sprayed into the flame of the spectrometer burner. Chromium was determined by the flame atomic-absorption method in the reduction flame of acetylene-air at a wavelength of 357.9 nm at a monotonic gap width of 0.2x mm.

The optimal parameters of the influence of ultrasound on the causes: intensity and time were selected experimentally, changing each of them until the appearance of the maximum possible. For the process of dissolving sodium chloride in hydrogen peroxide, these parameters were taken: frequency 18 ... 44 kHz, power 0.5 ... 0.8 W, time 20 ... 25 s. The maximum possible solubility of sodium chloride in hydrogen peroxide (up to 35 g / 100 ml) is reached at a temperature of -20 to -25 C (Table 1). Due to the low rate of dissolution of sodium chloride in hydrogen peroxide, large volumes of solvent were used.

At ultrasonic intensity less than 0.5 W, there is a slight increase in the solubility of sodium chloride. Under the influence of ultrasound less than 20 s of complete dissolution of sodium chloride, sodium does not occur, and the influence of more than 25 s leads to burning of the solution and, as a result, to a decrease in the solubility of Chromium. Analysis of impurities in sodium chloride was carried out before and after treatment with hydrogen peroxide. [5,p.563;6,p.7;7,p.179;8,p.100;9,p.12;10,p.124; 11,p.572;12,p.260;13,p.3324;14,p.139; 15,p.110;]

The correctness of the technique is determined by the "introduced-found" method (Table 2).

The method of determination of impurities in the kitchen salt is characterized by high sensitivity and accuracy (Table 3).

The use of US of two frequencies for the dissolution of sodium chloride in hydrogen peroxide is due to the higher efficiency of two-frequency ultrasound in comparison with ultrasound. Its due to liquidation of small cavitation bubbles in our solutions.

The change in the frequency of low-frequency ultrasound during the treatment of the mixture from 18 to 100 kHz on the solubility of sodium chloride in hydrogen peroxide did not occur (Table 4). Comparison of the results obtained with the use (Table 5). Comparison of the results obtained with the use of high-frequency ultrasound with a frequency of 0.5... 3.0 MHz showed that the best results were obtained with the use of 2.0. At the same time, the intensity of low-frequency ultrasound should be 0.15... 0.25 W, and high-frequency - 0.25... 0.50 W (Table 5).

As shown in Table 5, the use of two-frequency ultrasound leads to an increase in the solubility of sodium chloride in a hydrogen peroxide.

Thus, the use of two-frequency ultrasound in comparison with the use of ultrasound of the same frequency, allows us to increase the solubility of sodium chloride in the experiment from 42 up to 47

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g/100 ml, also to increase the degree of extraction of the introduced part of Chromium from 94 to 98%, to improve the metrological characteristics of the results of the analysis of Chromium.

**Conclusions**

The use of ultrasound (US) in the determination of Chromium in the kitchen salt with the use of extraction of the macrocomponent was studied.

Ultrasound was used to intensify the process of extraction of macrocomponent - sodium chloride. The use of ultrasound allows to increase the sensitivity and to improve the metrological characteristics of the analysis results.

The methods are intended for accreditation of chemical laboratories, for laboratories of state bodies of standardization.

**Table 1. Solubility of NaCl in hydrogen peroxide**

Temperature, °C	Solubility of NaCl, g / 100 ml of solvent	
	Without US	With US
-10	12,7	15,4
-15	18,9	26,7
-20	33,7	41,9
-25	34,8	42,0
-30	34,8	41,9

**Table 2. An influence time of solubility on the degree of Chromium extraction**

Time, min	Degree of Chromium extraction, %
10	72
15	79
20	85
25	85
30	85

**Table 3. The results of Chromium determination in kitchen salt**

	Found out, mg/kg / S <sub>r</sub> (n = 6, p = 0,95)			
	<i>Kitchen salt «Extra»</i>		<i>Kitchen salt «Artemsil»</i>	
	Injected, mg/kg			
	0	0,06	0	0,06
Without US	<u>0,025±0,010</u> 0,10	<u>0,089±0,022</u> 0,10	<u>0,036±0,009</u> 0,09	<u>0,089±0,010</u> 0,09
One frequency US	<u>0,030±0,003</u> 0,04	<u>0,092±0,007</u> 0,05	<u>0,043±0,004</u> 0,03	<u>0,102±0,007</u> 0,02
Two frequency US	<u>0,033±0,002</u> 0,02	<u>0,093±0,002</u> 0,02	<u>0,045±0,002</u> 0,02	<u>0,104±0,002</u> 0,02



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**Table 4. Comparison of well - known and proposed by us methods of Chromium determination in kitchen salt**

Parameters	Ways to obtain concentrate	
	Without US	With US
Limit of Chromium determination, mg/kg	0,001	0,001/0,001
S <sub>r</sub>	0,08	0,04/0,01
Time of analysis	45...50 min.	20...25 c / 20...25 c
Degree of extraction, %	85	94 /98

**Table 5. An influence of low frequency US on solubility of kitchen salt**

Characteristics	US frequency, kHz %							
	17	18	22	50	60	80	100	110
Solubility of NaCl in hydrogen peroxide, g/100 ml	43	47	47	48	47	47	47	45

**Table 6. An influence of high frequency US on solubility of kitchen salt**

Characteristics	US frequency, MHz					
	0,5	1	1,5	2	2,5	3
Solubility of NaCl in hydrogen peroxide, g/100 ml	40	47	47	48	44	36

**Table 7. An influence of intensity of US on solubility of kitchen salt**

US intensity, W/sm <sup>2</sup>	Solubility of NaCl in hydrogen peroxide, g/100 ml					
0,10	34	38	40	41	43	40
0,15	43	46	47	46	46	43
0,20	42	47	46	47	45	43
0,25	41	47	47	46	47	44
0,30	40	42	42	49	43	40

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## EFFECTS OF THE THERMAL RISK FACTORS ON THE STATIC STRENGTH OF THE STRAP COMPONENTS

**Abstract:** Used during firefighting activities, due to level differences, personal fall protection systems are often exposed to the action of thermal risk factors existing at work. Being made mostly of textile materials, personal protective equipment against falling from a height can be damaged by the action of thermal risk factors and broken under the action of the main risk factor (fall), thus leading to serious and even fatal accidents. The lack of a test method to follow the way in which thermal risk factors act on the mechanical properties of system components could create a false impression of ensuring adequate protection in such environments. Considering that the textile elements may be in the form of a strap or rope and that the elements in the strap are more likely to be damaged, the study consisted in the exposure to fire and contact heat of different types of strap made of polyamide, polyester and polypropylene. The analysis of the results showed a significant decrease in the mechanical strength of the strap samples exposed to fire, compared to those exposed to contact heat. Thus, it can be concluded that the applied methods could be used to test the textile components of personal fall protection systems intended for use in environments where there is occasional contact with flame or contact with hot surfaces.

**Key words:** textile, thermal risk factors, mechanical strength.

**Language:** English

**Citation:** Crăciun, N. (2021). Effects of the thermal risk factors on the static strength of the strap components. *ISJ Theoretical & Applied Science*, 11 (103), 976-980.

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### Introduction

As the working environments of firefighters are varied and depend mainly on the nature of the fire (burning of a house, factories, forests, warehouses, commercial spaces, etc.), the action of the dangerous factors existing in them affects both the user and the personal protection equipment damaging it. Often used during high-altitude firefighting operations, personal fall protection systems [1] must ensure that the health and safety of the firefighter is maintained by maintaining the protective characteristics throughout use. In other words, although the role for which they were designed is to prevent or stop the fall, the components of the system should be resistant to the risk factors existing in the working environment under conditions of foreseeable use. [2, p.76]

Being largely made of textile elements (strap and rope), during firefighting operations both the body support device (belt) and the connecting means may occasionally come into contact with the flame or

various hot surfaces [3, p. 2] whose temperature can reach up to 300 °C [4, p 1669]. Considering that the elements in the strap due to their structure (thickness of about 2.5 mm) are more likely to be affected by the action of the risk factors present in the work environment, the study will focus on tracking their mechanical characteristics after exposure to the risk factors.

The mechanical characteristic followed in the study was the static resistance, because it is the one that establishes the relationships between external forces and stresses that occur inside it when a fall occurs.

As the strap elements are mainly used to make belts (complex and positioning), the determination of a static resistance value was achieved by critical analysis of the standards EN 358:2018 [5] and EN 361:2003 [6] specific to positioning belts respectively complex belts. Thus, adequate protection is considered to be provided if, when a force of 15 kN is

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applied for 3 minutes [5, p.10; 6, p.7], the straps do not break or become loose.

As there are currently no [7, p. 1] test methods to monitor the fire and contact heat behavior of components made of strap, degradation to these risk factors has been carried out by assimilating specific methods to other types of personal protection equipment (hereinafter abbreviated PPE) intended for use by firefighters.

### 1. ESTABLISHMENT OF DEGRADATION AND TEST METHODS

#### 1.1. Degradation methods

Given the fact that most firefighting operations take place outdoors, in addition to thermal exposure and high humidity, there may be varying temperatures in the environment.

Thus, the methods of conditioning and degradation to which the selected straps were subjected were:

- Conditioning A, method assimilated according to point 5.3.3/EN 443: 2008 [8, p. 15], ie the samples were subjected to the following cycle: 1 h at  $(-30 \pm 2) ^\circ\text{C}$ , followed by exposure 1 h at temperature of  $(+60 \pm 2) ^\circ\text{C}$ , immersion in water for 15 min at the temperature of  $(+10 \pm 2) ^\circ\text{C}$ , 1 h at the temperature of  $(+60 \pm 2) ^\circ\text{C}$ , 24 h at the standardized temperature of  $(+20 \pm 2) ^\circ\text{C}$  and standardized relative humidity of  $(65 \pm 5)\%$ .

- Exposure to flame for 10 s: The method consisted of exposing the samples to the flame of a burner specified in EN ISO 15025:2017 [9] for 10 s. The burner flame in the horizontal standby position was adjusted to  $(25 \pm 2)$  mm, the distance measured from the end of the burner to the extreme point of the yellow part of the flame. During the test the burner was positioned perpendicular to the test sample at a distance of  $(17 \pm 1)$  mm measured between the end of the burner and the surface of the strap (see figure -1).



Figure 1 - Flame exposure system

- Exposure to contact heat for 60 s at  $300 ^\circ\text{C}$  [4, p. 1669]. The equipment used was as described in

section 8.7/EN ISO 20344 [10, p. 71] pg.71 (see figure - 2).



Figure 2 - Apparatus for testing the contact heat resistance

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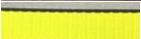
In order to follow the influence of the thermal risk factors present in the firefighting operations on the mechanical characteristics of the analyzed straps, the static resistance was determined both on the specimens in the initial state and on the specimens exposed to conditioning cycles and thermal risks. In case of exposure to thermal risk factors, the samples were conditioned for 24 h at a standardized

temperature of  $(+20 \pm 2) ^\circ\text{C}$  and a standardized relative humidity of  $(65 \pm 5)\%$ .

### 1.2. TEST RESULTS AND ANALYSIS

For the study, 3 types of strap were used (see Table 1), differentiated by materials, structure and dimensions.

**Table 1. Selected samples**

Sample code	Photo	Composition	Width, mm	Thickness, mm
1		100% polyamide (PA)	45	2,5
2		100% polypropylene (PP)	44	2,4
3		100% polyester (PES)	44	2,5

A set consisting of the 3 strap samples shown in Table 1 was prepared for each exposure. They were tested at a force of 15 kN for 3 minutes (see figure - 3) after being exposed to conditioning A followed by the



exposure to fire and contact heat. The static resistance of the unconditioned (initial) straps, exposed to fire and contact heat, was also tested.



**Figure 3 – Static resistance test stand**

The results of the test series are presented in Table 2


**Table 2. Static resistance after conditioning followed by exposure to fire**

Cod eșantion	Foto	Observations after applying the force	
		Initial + exposure to fire	Conditioning A + exposure to fire
1		breaks at 13,3 kN	breaks at 11,5 kN
2		breaks at 9,2 kN	breaks at 7,8 kN



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Cod eșantion	Foto	Observations after applying the force	
		Initial + exposure to fire	Conditioning A + exposure to fire
3		breaks at 8,6 kN	breaks at 7,9 kN

By performing the series of tests on the sets of samples in the initial state and exposed to conditioning A followed by the exposure to flame and mechanical strength, it was observed that regardless of the material from which the samples are made, they do not meet the static strength requirement.

Also, considering the results obtained, it can be said that the variations in temperature and humidity significantly influence the resistance of straps.

Regarding the exposure of the of sample sets in the initial state and exposed to conditioning A followed by exposure to contact heat the results are presented in Table 3.

**Table 3. Static resistance after conditioning followed by exposure to contact heat**

Cod eșantion	Foto	Observations after applying the force	
		Initial + exposure to contact heat	Conditioning A + exposure to contact heat
1		lasts 3 min	lasts 3 min
2		lasts 3 min	breaks at 10,6 kN
3		lasts 3 min	breaks at 13,8 kN

The analysis of the results mentioned in table 3 shows that regardless of the material from which all the belt samples are made, which were not conditioned but only exposed to contact heat, they withstood for 3 minutes the application of the 15 kN force.

By analyzing the results recorded in Tables 2 and 3 it can be concluded that successive exposures to large temperature variations (from -30 °C to 60 °C) accompanied by immersions in water, specific to conditioning A and frequently encountered in the case of activities at altitude, produce changes in fiber structure. As these changes cannot be observed in the case of periodic inspections, under the synergistic action of the various risk factors such as occasional contact with the flame and the occurrence of a fall from a height, they can lead to serious accidents.

Moreover, by analyzing the results obtained, it can be said that the static resistance depends both on

the nature of the material from which the straps are made and on the nature of the risk factor. Thus, it can be said that the straps in PA have an increased resistance compared to those in PP or PES.

## CONCLUSIONS

The results of the study tests showed that under the action of various risk factors (environmental conditions, fire, hot surfaces, etc.) the elements made of strap lose their protective characteristics. Due to this, it is considered necessary to test the components of personal fall protection systems considering the risk factors existing in the work environment. Therefore the development and implementation of the test methods specific to the existing risks in the workplace is considered imperative in establishing the appropriate protection characteristics.

## ACKNOWLEDGEMENTS

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## POST COVID-19 STRATEGIES TO RELAUNCH THE ROMANIAN TOURISM

**Abstract:** *The Romanian tourism has been crushed by the pandemic crisis, the number of tourists has drastically decreased in 2020 compared to 2019, the new restrictions imposed have limited the type of tourists, so the country has been limited to domestic tourists (96.7% of total arrivals), international tourists having a modest percentage (3.3% of total arrivals). During the whole period of the March 2020 and May 2020 quarantines, national tourism was put on hold, for almost a year it oscillated between opening and closing restaurants, outdoor restaurants and cafes, event halls etc. or operating at 30% capacity.*

**Key words:** Covid-19, strategy, Romanian tourism, tourism destinations, the perception of tourism.

**Language:** English

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### Introduction

#### Literature Review

The first definition of tourism appears in 1876, in the Universal Dictionary of the 19th century, as "a person who travels only for the pleasure of travelling (so that they can say they have travelled)" (Zbigniew Mieczkowski, 1990, quoted by Cosmescu, 1998).

One of the largest intergovernmental international tourism organisations is the **WORLD TOURISM ORGANISATION** (UNWTO), which was established in 1975 (the first General Assembly was held in May 1975 in Madrid).

The World Tourism Organization (UNWTO), in its recommendations adopted in 1993, states that tourism includes "activities undertaken by persons, during travel and stay, in places outside their usual environment (usual residence), for a consecutive period not exceeding one year (12 months), for leisure (recreation), business or other purposes" (UNWTO, 1993).

Also, from a global perspective, the World Tourism Organisation is the main forum supporting

sustainable and universally accessible tourism development, with a special focus on developing countries.

The non-governmental organisations in which Romania participates through professional associations include: the Universal Federation of Travel Agents Associations (UFTAA), the World Federation of Thermalism and Climatology (FEMTEC), the International Academy of Tourism, the International Bureau of Social Tourism, etc.

The UNWTO experts point out that the travel and tourism industry will rank third in the world businesses after information technology and telecommunications in the 21st century. Some 1.006 billion international tourists and more than 1.055 billion USD in revenue are expected in 2010, and in 2020 the estimated figures are 1.6 billion tourists and 2.000 billion USD in revenue. If we add the domestic tourism (within the borders of the countries), which is constantly increasing, we can estimate the scale of this economic and social phenomenon worldwide, with

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predictable consequences for the environment and human society. (Neacșu et al., 2011).

In our opinion, tourism and environment are considered two notions, different as subsidiary fields, which depend on each other; thus, tourism is recognized as an industry that relies on and depends on natural resources (relief, climate, hydrography, flora, etc.) and cultural resources and local/regional and national heritage.

COVID-19 viral disease caused the 2019 coronavirus pandemic aggravated by a fatal infection (SARS-CoV-2) (Aqeel et al., 2020).

Health experts first identified the virus in Wuhan, China, in late December 2019. WHO declared an outbreak of COVID-19 a public health emergency of international concern in January and a global pandemic in March 2020. As of March 15th 2021, this pandemic has infected more than 119 million people, of which more than 2.66 million people have died from the deadly infectious disease (Lange, 2021).

According to Chang et al. (2020), the future of tourism in the COVID-19 era is uncertain, with pandemics affecting not only people's health, but more so the global economy and the very fabric of society. Thus, there is a critical need for new research aimed at identifying the best solutions to reinvigorate the tourism industry, one of the economic sectors heavily affected by the current health crisis.

The pandemic caused by SARS COV2 - COVID-19 has placed the Romania's hospitality sector under unprecedented pressure. As a result of the travel and health restrictions, the tourism in Romania has gradually ceased its activities in the first half of 2020.

Therefore, we can conclude that the Romanian tourism after the COVID-19 pandemic operates with a complexity of terms that describe the capacity of various territories and areas to attract tourists by exploiting the natural and man-made tourism potential of a city/tourist area, by promoting traditional tourism products, rural areas, crafts, tourism offer, traditions and highlighting the existing tourism potential, each of these notions being defined differently.

From our point of view, tourism is the most complex and heterogeneous activity in the economic sector; the activities embedded in the hotel sector in Romania require a collaboration and balance between several disciplines (from economics, natural sciences, sustainable tourism, informatics, regional tourism,

ecotourism, etc.), focusing on the field of research, to the implementation of effective strategies.

### Data and Methods

The elaboration of this research "POST COVID-19 STRATEGIES TO RELAUNCH THE ROMANIAN TOURISM" involves a complex (quantitative and qualitative) methodology.

Firstly, a cross-sectional research was carried out based on the application of a questionnaire, which aims to know the perceptions that the Romanian tourists had before and after the Covid-19 pandemic, how their choices have changed and what motivation they currently have to travel.

Secondly, in order to refine the results of the questionnaire, a qualitative interpretation of the data obtained was carried out.

Thirdly, a literature search on tourism and the Covid-19 pandemic and statistical documentation from the National Institute of Statistics was carried out. (<http://statistici.insse.ro:8077/tempo-online/>).

The questionnaire is a method, a research and an investigation tool consisting of a set of written questions, and possibly cartographic materials, graphs, videos, logically ordered, through the administration of operators to obtain from the respondents answers as concise and clear as possible that are to be interpreted graphically.

### Introduction

The Romanian hospitality industry was in a period of economic boom when the pandemic hit, a new series of accommodation facilities had been developed and the number of tourists was increasing (Table 1). However, the COVID-19 pandemic hit the sector hard and in 2020, accommodation facilities such as B&Bs, hotels and campsites relied strictly on domestic visitors.

The whole hotel industry is going through the first phase of the crisis triggered by COVID 19, i.e. survival, with all specialised parties of the sector trying to find the best ways to reduce costs either by resorting to solutions offered by the government (unclear) or by negotiating other contract terms with suppliers or employees.

Romania used to be visited by 2.3 million foreign tourists who spent their holidays here or came for business tourism, but in 2020 the situation was totally different as tourists stayed in their own country due to restrictions imposed by each country.

**Table 1. Romania accommodation units before Covid-19 (2018)**

Hotels and motels	22,1% (total)
Agritourism guesthouses	33,4% (total)
Tourist bed and breakfast	20,2% (total)
Tourist villas and bungalows	14,5% (total)
Occupancy rate (average)	32% (total)
Tourism in Romania (GDP)	5% (total)

(source: <http://statistici.insse.ro:8077/tempo-online/>)

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Considering the turnover for the first half of 2020 compared to the first half of 2019, the following was found:

- Accommodation structures - reduction of turnover by 36.8%;
- Food facilities - reduction in turnover by 33.5%;
- Travel agents - 60.5% reduction in turnover (<https://www.zf.ro/companii/peste-de-companii-din-turism-afectate-de-criză-covid-19>).

Even before the pandemic, the Romanian tourism industry was one of the most underdeveloped

industries in the European Union, although it has 8,500 accommodation facilities, divided into 12 types.

The crisis generated by COVID-19 has changed the way people travel, the airports being closed and because of the implementation of quarantines for some destinations, tourists choose domestic destinations that are in nature and that offer them health safety, but even if they did not travel abroad, the number of Romanian domestic tourists decreased drastically in 2020 compared to 2019, according to the data provided in (Table 2).

**Table 2. Arrivals of Romanian tourists in tourist accommodation facilities with tourist accommodation functions, by tourist destinations (number of places)**

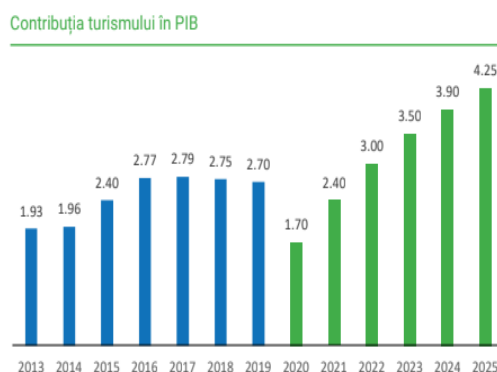
Tourist destinations	2019	2020
Bath resorts	1098706	595762
Coastal resorts, excluding Constanța city	1119401	899104
Resorts in mountain areas	2109378	1269109
Danube Delta area, including the town Tulcea	146006	116797
Bucharest and cities of residence, excluding Tulcea	4209530	1994058
Other localities and tourist routes	2008174	1069945

(source: <http://statistici.insse.ro:8077/tempo-online/>)

The revival of the Romanian tourism has been a much-debated topic by people working in this field, as it has been hit hard by the corona-virus crisis, and they have been looking for a return to normality, even if new rules have been implemented to be respected by both people working in tourism and tourists. The Romanian tourism has been on hold for a long period of time, due to restrictions and quarantines that have been implemented on the Romanian territory to stop the pandemic from spreading in the country. In the summer of 2020, quarantine measures began to be relaxed in Europe, as well as in Romania, with the reopening of outdoor restaurants and cafes (until a

certain time of day), restaurants, hospitality industry, etc.

Although the tourism in Romania is not a core branch of the economy because it is not sufficiently promoted and exploited, it accounted for only 2.7% of the country's GDP in 2019, and due to the pandemic, it reached 1.7% in 2020 (Fig. 1). And in order to restore this, people working in this field need to ensure for the tourists travelling here health safety, quality, social distancing, sustainability; and keep their attention towards other types of tourism, which require a smaller number of people, such as: ecotourism, rural tourism, agritourism.



**Fig. 2. Contribution of tourism to GDP**

(source: <https://incomingromania.org/wp-content/uploads/2020/05/Contributia-turismului-in-PIB-ul-Romaniei-1024x607.png>)



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The tourists of 2020 chose family or individual tourism as their first form of tourism and reoriented themselves towards destinations that are not crowded,

for example the Danube Delta (Fig. 3) and tourist areas such as Maramureş (Fig. 4) or Transylvania.



**Fig. 3 The Danube Delta**

(Source: <https://www.unanhaihui.ro/jpg>)



**Fig. 4 Maramureş County**

(Source: <https://cdn.britannica.com/Countryside-Maramures-judet-Romania.jpg>)

As far as accommodation is concerned, in 2020, tourists turned to holiday homes, holiday apartments, B&Bs and smaller hotels.

The Alliance for Tourism (Alianța pentru Turism - APT), which is an organization made up of 18 associations from all representative fields, was founded in order to relaunch the Romanian tourism. Romania reopened its indoor and outdoor restaurants on the 15th of June. Thus, through the initiative „SOS Romanian Tourism”, APT draws attention to the fact that „without a courageous recovery strategy we risk having irrecoverable economic losses at national level” and that „Romania should be part of the first group of countries to reopen tourism”. (<https://www.dw.com/ro/relansarea-turismului-rom%C3%A2nesc-de-la-lockdown>).

### 1.1. Measures to save the Romanian tourism ([www.horeca.ro](http://www.horeca.ro)):

1. Establishing and approving industry medical safety rules by the Ministry of Health and the Ministry

of Economy, Energy and Business Environment that are applicable in tourism industry facilities in order to significantly reduce the risk of infection with COVID-19 virus during holidays/travel in Romania.

2. Supporting the tourism workforce after the end of the state of emergency by extending state-supported technical unemployment also during the state of emergency and also by using the part-time work method. Respectively, for facilities/activities that will not be able to resume work on the 15th of May 2020, maintaining the measure of technical unemployment, as per GEO on the 30th of March 2020, at least for a period of up to 3 months.

3. Partial or full coverage by the State of the additional costs arising from the additional hygiene and sanitary measures to be taken by the accommodation, food, treatment, etc. establishments in order to resume activity (sanitation, additional materials and equipment, etc.).

## Impact Factor:

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 OAJI (USA) = 0.350

4. Temporary modification of the rules for the use of meal vouchers. Use of meal vouchers only in establishments with a restaurant NACE.

5. Financing the activity of Destination Management Organisations (DMOs) through two permanent sources: promotion tax and resort tax

6. Romania's membership in world tourism bodies, to play an active role in these institutions, so as to promote Romania, bring events to the country and make an easy transfer of know-how, e.g., ECTAA, HOTREC, ESPA, ICCA etc.).

7. Update the Tourism Public Investment Master Plan, taking into account global travel industry consumption trends as well as sustainability and climate change adaptation practices.

8. Introducing tourism impact assessment to public investment in other economic sectors (e.g., culture, health, education, infrastructure, agriculture, sports, etc.).

9. Digital platform to promote the Romanian tourism.

10. Increasing the attractiveness of the Danube Delta Biosphere Reserve.

11. Implementation of a plan of specific measures for sustainable tourism and adaptation to climate change so that sustainable tourism and the network of ecotourism destinations become the basic pillars of the Romanian tourism from 2021 onwards.

12. Start the implementation of the national programme of dedicated cycle routes and Euro routes with dedicated tracks, related infrastructure, IT support and well-defined legislative framework from 2021 onwards.

13. Start the implementation of the national programme for the development and support of the network of mountain huts, refuges and trails in the Carpathians from 2021 onwards.

14. Regulation of tipping (called TIPS) in the hospitality industry.

15. Simplify the activities of tourism transport companies and reduce red tape.

One solution that EU member states have thought of, in order to see under what conditions they will resume tourist activity, has been the creation of so-called travel corridors that offer added safety to tourists, they could be opened from Germany, Austria, Switzerland and Ukraine to Romania, according to APT (<https://www.dw.com/ro/relansarea-turismului-rom%C3%A2nesc-de-la-lockdown-la->).

### 1.2. Tourists' perception before and after COVID-19

In order to analyse the current situation of the Romanian tourism in detail, we have prepared a questionnaire, which aims to find out the perceptions of Romanian tourists before and after the Covid-19 pandemic, how their choices have changed and what motivates them to travel nowadays.

The questionnaire aims to identify the current situation regarding the COVID-19 pandemic and its effects on the Romanian tourism; it was drawn up on a sample of 46 people of different ages (18-59 years), consisting of a series of 58 short questions, belonging to 4 classifications, aiming to obtain:

1. Identifying data: age, education, residence, etc. - 5 questions;
2. Travel patterns before COVID - 19 - 20 questions;
3. Travel patterns after COVID - 19 - 20 questions;
4. Motivation to travel in relation to tourism activity - 13 questions.

80% of the people interviewed come from urban areas, mainly from Craiova, 1 person from Bucharest, and a few other people from rural areas of Gorj, Olt and Mehedinți counties. In terms of level of education, 52.2% are university graduates, 19.6% are high school graduates and 17.4% have masters' degrees and postgraduate studies (Fig. 5).

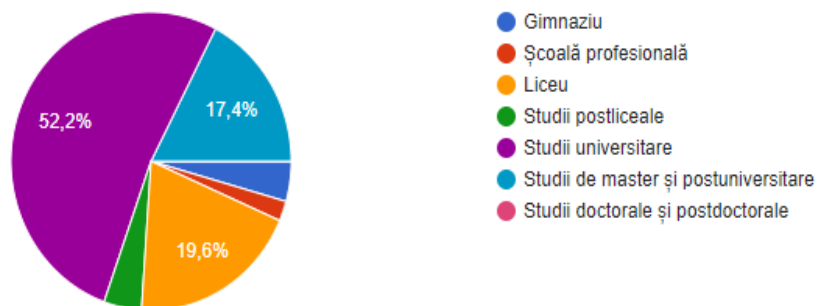


Fig. 5 Education level of respondents

In the following segment I will analyse and compare the results obtained for each question/classification, thus I gave the respondents the opportunity to give scores regarding their participation in tourism activities, ranging from 1

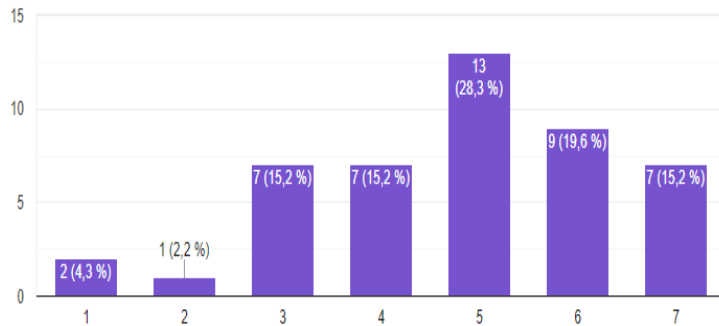
(inactive participation) to 7 (active participation). Before the pandemic, people participated quite often in tourism activities (Fig. 6), as 28.3% of the respondents gave a score of 5; 19.6% gave a score of 6, and the maximum i.e. 7 -15.2%, and the most

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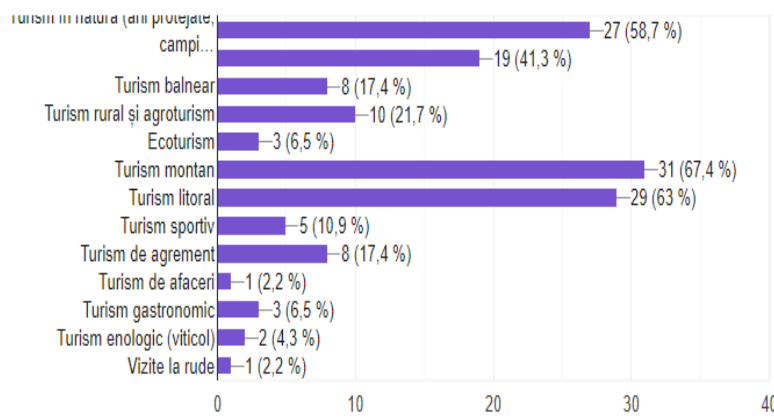
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chosen types of tourism were: tourism in protected areas, mountain tourism and seaside tourism, in the case of this question we let them tick how many types

of tourism they practiced, therefore the graph has high values (Fig. 7).



**Fig. 6 Tourist participation in tourism activities before COVID-19**

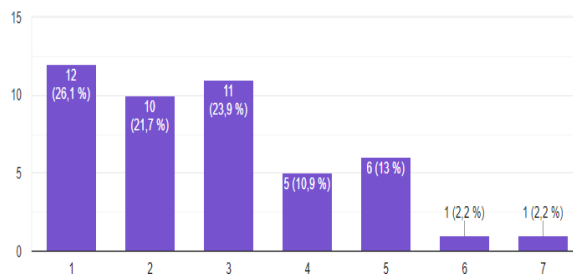


**Fig. 7 Type of tourism preferred by tourists before COVID-19**

(Tourism in protected areas, bath resorts tourism, rural and agriturism, ecoturism, mountain tourism, seaside tourism, sports tourism, leisure tourism, business tourism, gastronomic tourism, wine tourism, visiting relatives)

low, 26, 1% of respondents gave a mark 1 (inactive participation), mark 2 - 21, 7%, and higher mark 7, only 2.2%, and in terms of preferences for a type of tourism practiced, the tastes of Romanian tourists remain the same, although they could change them during this period to avoid overcrowding, for example: to practice rural tourism, ecotourism etc.

Compared to the above, the situation after COVID -19 is totally different (Fig. 8), so the participation of tourists in tourism activities is quite



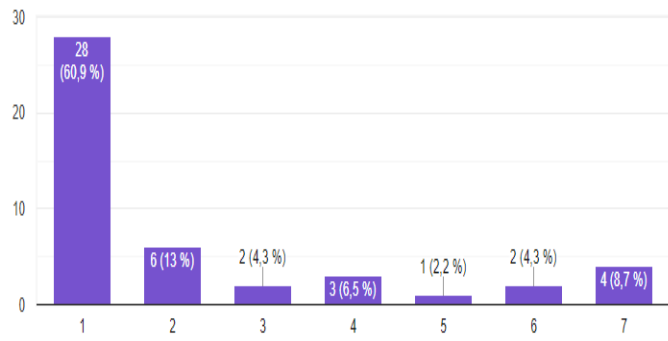
**Fig. 8 Tourist participation in tourism activities after COVID-19**

Out of the total of 46 respondents, 60.9% gave a mark 1 (disagree) and only 8.7% gave a mark 7 regarding the avoidance of eating in public restaurants (Fig. 9) before Covid-19, the situation after Covid-19

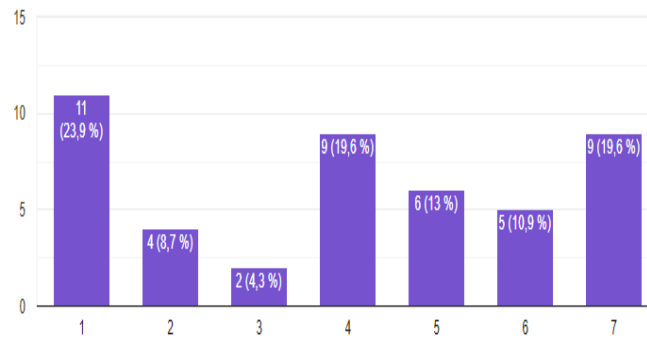
(Fig. 10) is not very drastic, thus 39.1% gave a mark 1 (disagree) and 19.6% gave a mark 7, from which we can conclude that Romanian tourists were willing to frequent restaurants even during the pandemic.

**Impact Factor:**

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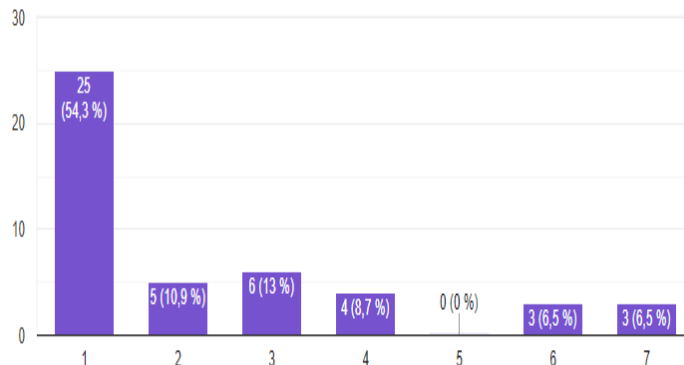
**Fig. 9 Avoiding eating in public places and restaurants before COVID -19**



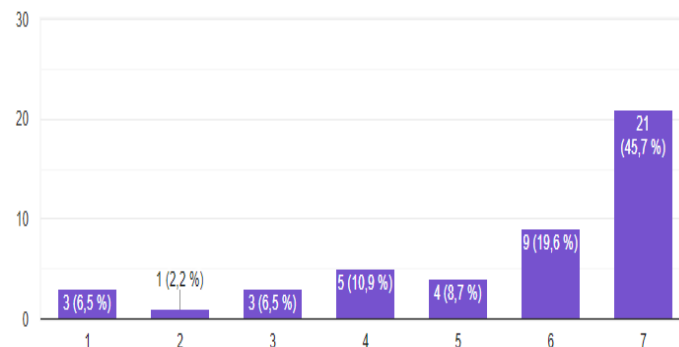
**Fig. 10 Avoiding eating in public places and restaurants after COVID -19**

Depending on the period before and after COVID-19, tourists changed their preferences in terms of choosing a destination, since before the pandemic they opted for crowded destinations (Fig. 11) given the fact that 54.3% chose these destinations, whereas things are completely different after the

COVID-19 pandemic (Fig. 12), people deciding to avoid crowded tourist destinations, thus 45.7% completely agree that is why they also gave the maximum score 7, the main factor that caused this was the fear instilled by the media about the pandemic.



**Fig. 11 Avoiding crowded tourist destinations before COVID-19**



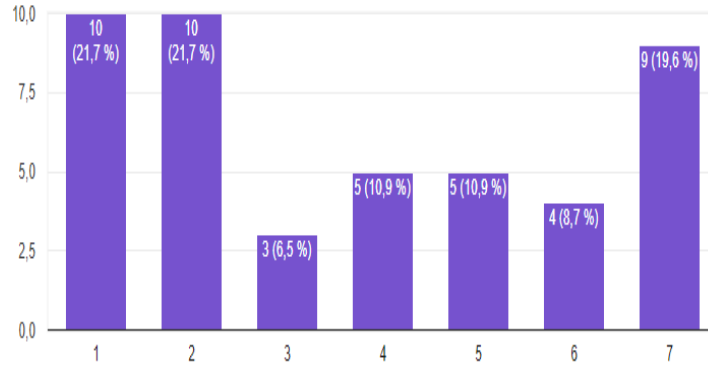
**Fig. 12 Avoiding crowded tourist destinations after COVID -19**

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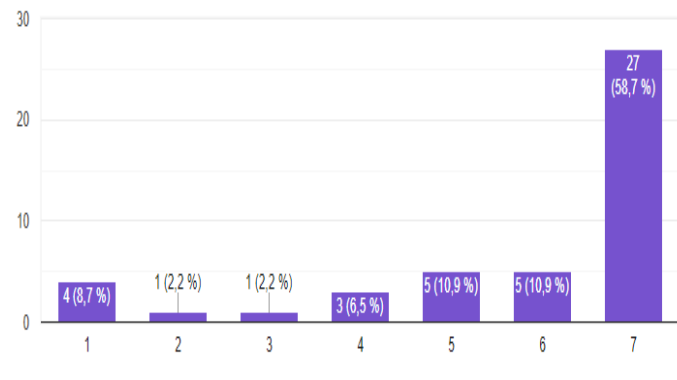
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Before the pandemic, tourists oscillated between seeking information about the chosen tourist destinations, therefore 21.7% gave a score of 1 (completely disagree), but 19.6% gave a maximum score of 7 (completely agree), but after COVID -19,

the situation is completely different, 58.7% of tourists gave a score of 7, completely agreeing with seeking news and good information before choosing a destination (Fig. 13 and Fig. 14).



**Fig. 13 Search for information about a destination related to the risks it offers before COVID -19**



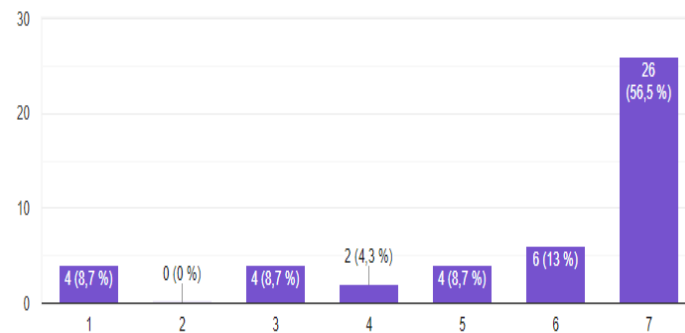
**Fig. 14 Search for information about a destination related to the risks it offers after COVID -19**

The last questions of the questionnaire comprise the fourth classification which aims to find out the motivation to travel that tourists have after and during the COVID-19 pandemic. Tourist motivation is the main factor influencing a tourist to travel, it is based on needs, which have to be satisfied, such as:

- The need for entertainment or leisure;
- The need to get away from the polluted urban environment and escape from everyday life;
- The need to discover 'new' things;
- Health care;
- The need to get to know the traditions, customs, landscapes, etc. of an area;

- The need to escape the stress caused by pandemics.

The first questions of this classification are based on the perception that tourists have about a possible infection with COVID-19, so from the answers we received we concluded that people are afraid of a possible illness caused by this virus, of the 46 people interviewed, 26 gave the highest score, i.e. 7 (completely agree) to the question: "Would the whole family suffer if you were infected with COVID-19?" (Fig. 15).



**Fig. 15 Tourists' perception of COVID-19 infection**

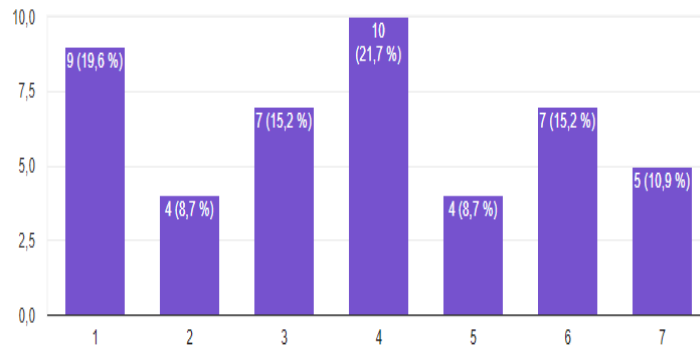


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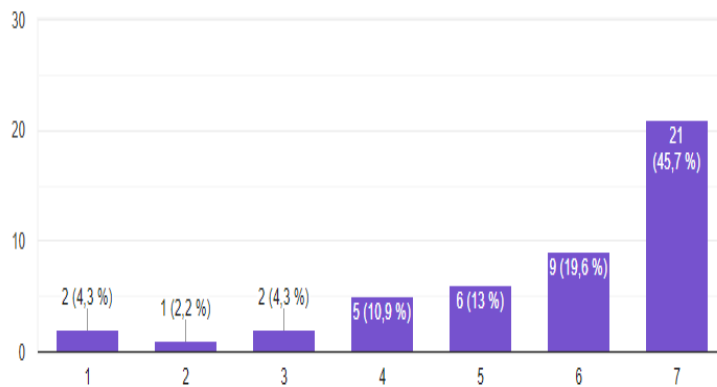
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Regarding the safety that masks, disinfectants, etc. offer them when travelling, tourists are quite oscillating in their answers (Fig. 16), thus I can

conclude that they do not have enough confidence in these means of protection, but they are willing to use them in order to travel (Fig. 17).



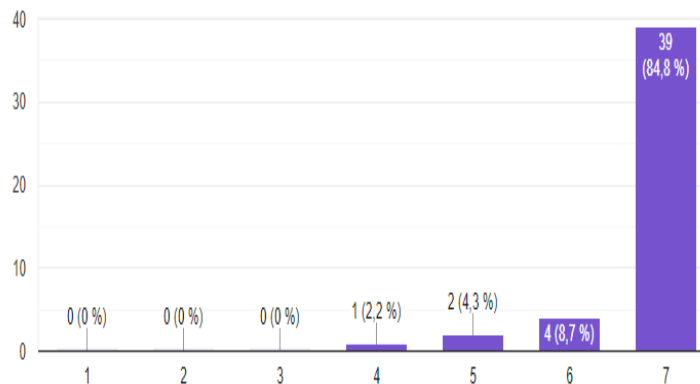
**Fig. 16 Travelling with mask, disinfectant, etc.**



**Fig. 17 Always wearing the mask when travelling**

Even if the COVID-19 pandemic has brought Romanian tourism down, it still offers people a good mood, given the fact that 84.8% gave a maximum

score of 7 (completely agree) to the question "Does tourism offer you a good mood?" (Fig. 18).



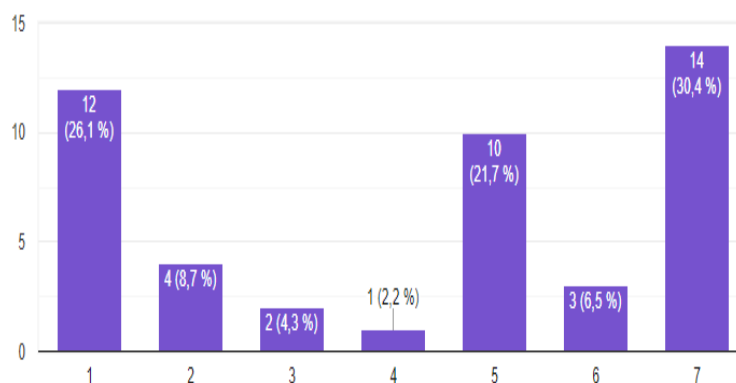
**Fig. 18 The mood that tourism offers**

Respondents are willing to use some health insurance, vaccines, etc. in the pandemic to travel

(Fig. 19), but are willing to change their travel style POST COVID-19.

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**Fig. 19 Ways to facilitate travel during the pandemic**

The last question asked to the sample of 46 people: "Do you have any suggestions or recommendations regarding the pandemic in tourism?", where we received the following answers:

1. "Reducing travel restrictions abroad. Also reducing restrictions at home by opening SPA centres."

2. "Lower prices to persuade as many tourists as possible to resume their tourist activities at the pre-COVID-19 level".

3. "Strict compliance with the imposed rules".

4. "Let people not be deprived of this enjoyment, which is tourism" etc.

### Conclusions

The Romanian tourism economy has been knocked down by the COVID-19 pandemic, and, after the study we conducted, we came to the following conclusions:

- Tourism is an activity that is meant to offer people a good mood.

- Tourism is a system that is influenced by many factors, both positive and negative.

- The Romanian tourism is based on the country's natural potential (Carpathian - Danube - Pontic areas).

- Although the tourism potential is huge, the poor promotion and exploitation of this sector places it at the bottom rank in terms of its contribution to Romania's GDP (5%).

- Romania offers a wide range of types of tourism, from mountain tourism, seaside tourism, rural tourism, etc.

- The global economy has faced various economic crises, and the ones that have affected tourism the most were: the global economic crisis of 2009 and the global pandemic crisis generated by the COVID-19 virus in 2020.

- Following the economic crisis in 2009, the situation of the Romanian tourism was not very tragic, compared to the economic crisis in 2020, which literally brought tourism to its knees.

- In 2020 the number of tourist arrivals in Romania was 6.3 million, down by 52.3% compared to 2019. Almost all tourists visiting the country were Romanians (93%) and very few foreigners (7%).

- The number of overnight stays fell drastically with 14.4 million tourists, down by 51.6% compared to 2019.

- The utilization rate of accommodation places in 2020 was 22.8% on the total number of tourist accommodation facilities, down by 11.3% compared to 2019 (33.9%).

- Most tourist arrivals and overnight stays in tourist accommodation facilities with tourist accommodation functions were in the following counties: Constanța, Brașov, Sibiu, Mureș, Suceava, Vâlcea, Caraș-Severin, Timiș, Prahova, Bucharest municipality and Cluj.

- The revival of the Romanian tourism has been and still is a serious and complex issue debated by people working in this field.

- The central body for the revitalisation of the Romanian tourism is the Alliance for Tourism (APT).

- The way of travelling and the lifestyle of tourists changed radically after the COVID-19 pandemic, they had to adapt to the new style.

- The European Commission has adopted several solutions to facilitate free travel, such as: the Re-open EU platform, contact tracing mobile apps and the latest measure is the green certificate.

- Two types of guides have been launched in Romania: "Restaurant Safety Guide" and "State Aid Guide for the hospitality industry".

As it is outlined in One Planet Vision for a Responsible Tourism Recovery from COVID-19, commitment and planning for a green recovery gives us a unique opportunity to transform the sector in line with the goals of the Paris Agreement. If we can move quickly away from high carbon emission and material consumption visitor experiences, and instead prioritise community and ecosystem wellbeing, then

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tourism can be a leader in the transformation towards a low carbon emissions future.

A just transition to Net Zero before 2050 will only be possible if the tourism recovery accelerates the adoption of sustainable consumption and production and redefines our future success to consider not just economic value, but rather the regeneration of ecosystems, biodiversity and communities.

In order to safely reopen the Romanian tourism, serious investments in this field are needed, as well as a lot of commitment to promote it, through the tourist attractions that the country offers. We must not limit ourselves to seasonal tourism (summer and winter), but we must also publicise other types of tourism that are suitable for the current situation, such as rural and agritourism, ecotourism, etc.

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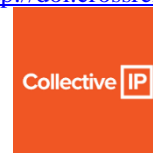
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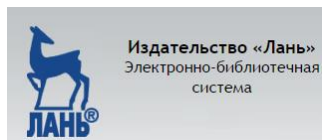
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