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**FOREIGN EXPERIENCES OF ATTRACTING INVESTMENTS TO SPECIAL ECONOMIC ZONES**

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Abstract

The article examines the experience of the USA and China in the establishment and development of special economic zones. Projects implemented in special economic zones are also listed. The organization of special economic zones and their current status were analyzed. Scientific proposals and recommendations on foreign experiences of attracting investments to special economic zones have been developed.

Keywords: special economic zone, investment, foreign direct investment, GDP, tax, customs.

Introduction

Analysis of the world experience shows that today, sustainable economic growth of the country and the region and wide attraction of local and foreign investors can be achieved by increasing investment activity. In this process, special economic zones are one of the most effective forms of stimulating investment activity. The availability of special tax and customs regime benefits, cheap labor force, import and export procedure of raw materials and simplification of product production attract local and foreign investors. Today, a lot of attention is paid to the establishment of special economic zones in order to attract investments.

Analysis of literature on the subject

Currently, industrialized countries are creating free economic zones for various purposes. There are different definitions of free economic zones. More than 20 definitions are given in the work of the UN devoted to this problem. For the first time free economic zones or "franco zones" were given in the 1973 Kyoto Convention. Free economic zones can be defined as a part of the state territory where preferential conditions of economic activity, a special regime of management and other organizational and administrative measures are introduced for national and foreign entrepreneurs in order to achieve certain results.

According to the research of South Korean scientist Kim, "Free economic zones are specially organized areas for foreign countries, enterprises and firms, where their enterprises and employees, in turn, comply with the existing laws due to the privileges given by the government. are the zones where you can make a profit. The state aims to create free economic zones in order to have a more economically transparent environment in such zones



than in other areas, and through this, to create a flow of investment and competitive industrial and trade characteristics.

According to V.Papov's researches, "Free economic zones are such regions that are separated from other regions and given special privileges and facilities by the state, these advantages are not observed in any other part of the state or economic sector".

Scientists of our country A.V. Vakhobov, S.S. Mirzaliyeva, M.A. Raimjonova and A.A. Ostonakulov have expressed their scientific views on free economic zones and their activities in their research and scientific-methodical works.

S.S. Mirzaliyeva "Free economic zone is a part of the territory of a country (or countries) established for the purpose of solving certain social, economic and technological tasks, with a special administrative management and a preferential regime for economic entities" is defined as In our opinion, in this definition, the investments attracted in order to solve certain social and economic technological tasks and the determination of benefits based on their size are left out of the scope.

Summarizing the above, in our opinion, free economic zones can be understood as a region with increased independence in the implementation of certain economic activities, a special management regime and favorable conditions for the economic activity of investors. In our opinion, these general definitions make it possible to place the different types and forms of free economic zones and the definitions given to them in one general line.

Research Methodology

The article used systematic analysis and approach, logical and structural analysis, grouping and generalization, comparison methods.

Analysis and Results

The first special economic zones were special zones located in major river ports, and such free trade zones were established at railway junctions, trade routes or places related to them, and generally at transit locations. They are exempted from customs duties on import and export of foreign products and separated from the customs border of the country. These unique regions mentioned above can be included in the first generation of special economic regions.

The second generation special economic zones will include special order industrial production zones. In the third generation of special economic zones, it is appropriate to include technical areas, technopolises, technoparks, tourism, offshore zones, banking and insurance services, etc. Several types of special economic zones were established in each period.

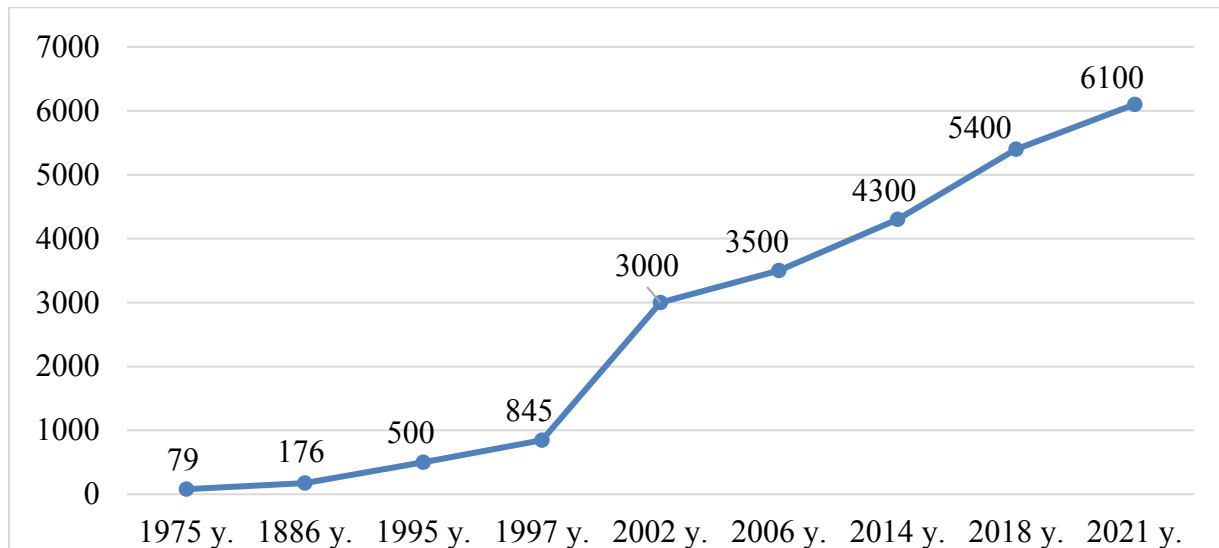


Figure 1. The number of special economic zones operating in the world

Currently, there are more than 400 free trade zones, more than 400 technoparks, technopolises, and more than 100 special economic zones designed to provide services. According to the United Nations and the International Labor Organization, there are more than 6,000 different types of special economic zones in the world. It can be seen from the data of the picture that in the 70s of the last century, the number of MIH was 79, and today it is 6000, and we can see that it has increased by almost 80 times.

Today, the demand for foreign direct investments of all developed and developing countries is increasing. Because investments act as the main generator that develops the economy. If we look at the last 10 years, there was a change in the flow of foreign direct investments in the countries of the world (Figure 2). According to the analysis, the flow of foreign direct investments fluctuated between 2009 and 2018. One of the main reasons for this is the negative impact of the global financial and economic crisis of 2008-2009 on all sectors of the economy, and on the other hand, the impact of the second wave of the crisis that began in European countries in 2014-2015 on general indicators. , we can admit that.

The financial crisis of recent years not only weakened the economy, but also accelerated the division of the population into poor and financial groups. It has led to an increase in the number of unemployed, a decrease in the income of a large number of people, a decrease in the demand for various services and goods, and ultimately it has had a serious impact on the flow of foreign investments floating between countries.

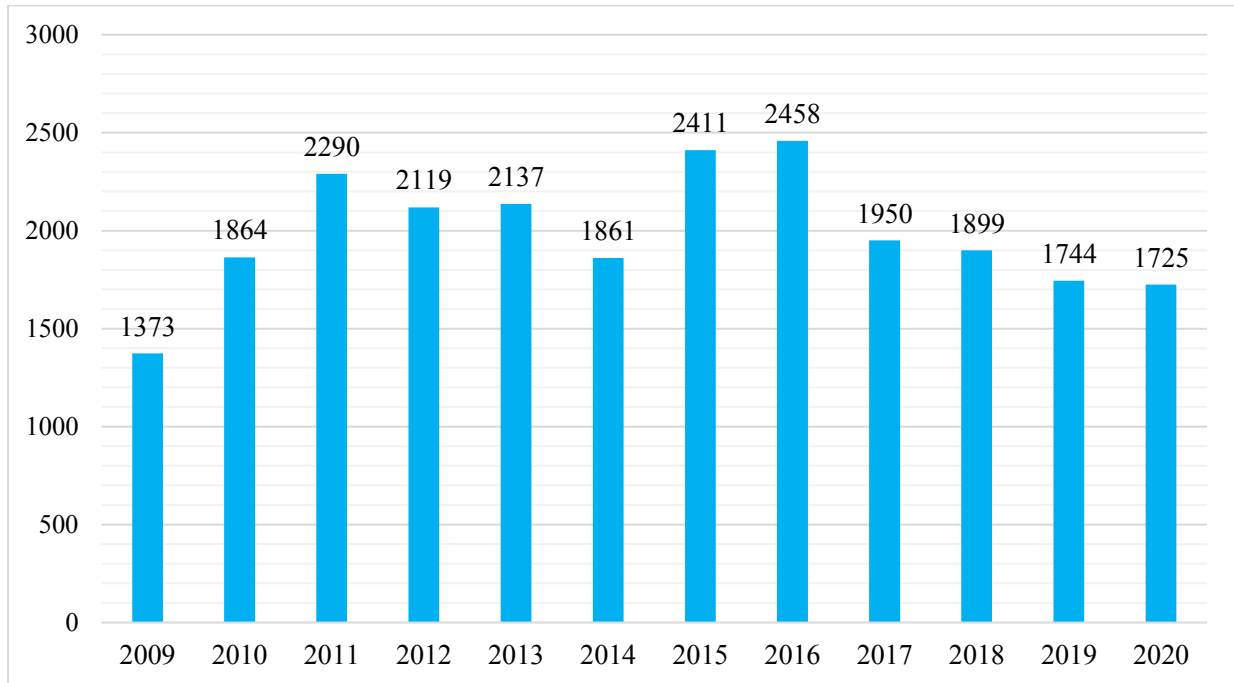


Figure 2. Changes in the flow of foreign direct investments attracted to the countries of the world in 2009-2020

It should be noted that the main part of attracted foreign direct investments today belongs to special economic regions and to the contribution of real sector industries of the countries of the world. According to the data, the measures taken to attract foreign direct investments in developed and newly industrialized countries are of great importance. In this regard, infrastructure networks created in special economic zones and a favorable investment environment serve as one of the main factors in the absorption of foreign investments.

The huge experience accumulated in the world practice shows that MIZ is one of the important factors in the development of the country's economy and in attracting the flow of investments to the country's economy.

Among the developing countries, China is the country that has created a favorable investment environment for TCI in the economy. For example, in 2005, the country contributed 8 percent of the total world GDP, i.e. 72.8 billion. If it was the US dollar, in 2006, 5 percent was 69.5 billion. dollar, and in 2008 the difference was 10 percent. In the 80s of the 20th century, TTXI began to enter the Chinese economy at a high rate. In 1980, the TTXI accumulated in the country's economy reached 1 billion US dollars, and by the 1990s, it reached 21 billion. 168.535 billion US dollars. It can be seen that the US dollar has increased 168 times compared to 1980. The role of MIZ in the TTXI entering the Chinese economy is of unprecedented importance in attracting investments. For example, in 2013, TTXI accounted for 41.2 percent of the total investments made in the country through MIZ, in 2016 it was 69.7 percent, and by 2018, it will be about 168 billion. It increased by 72.6 percent to the US dollar and showed a constant growth trend.

Based on the above, the fact that free economic zones are taking an increasingly strong place in the development of the Chinese economy can be explained by the following: the use of



special customs and tax incentives beneficial for foreign investors in free economic zones; the creation of an effective mechanism for the large-scale export of products created as a result of production based on high foreign technologies in free economic zones; that in achieving economic development in free economic zones, increasing the consumption of material resources in scientific and technical processes and increasing the innovations in management are given wide opportunities for all-round independent innovations, etc.

China's economy is in the second place in the world in terms of growth rates, and it has achieved this due to the fact that it was able to immediately change the world's business relations. Cheap labor has led to lower prices in the West for everything from slippers to mobile phones. In addition, China has become the largest investor in Africa, Beijing considers the "black continent" as its main partner, not Europe or America.

Today, Chinese goods can be seen everywhere in the world, and by the 21st century, it has truly become the "factory of the world". 50% of the world's cameras, 30% of air conditioners, 25% of washing machines, and about 20% of refrigerators are produced here. It should be noted separately that free economic zones played a significant role in China's development. Currently, four special economic zones are operating here - Shenzhen, Zhuhai, Shantou and Xiamen. In addition, there are 14 free trade zones, 53 high and new technology zones, more than 70 scientific and technical zones for foreign-educated specialists, and 38 zones for processing products intended for export.

In general, in order to increase the competitiveness of the country's economy, the main attention should be focused on the use of natural resources and industrial potential of the regions and on strengthening the export system. It is in this place that the organization of modern free economic zones, which is a productive form of attracting foreign investments, is of particular importance. In this direction, it is worth noting a number of economic measures that are widely used in the world experience and are bearing fruit.

In 1978, the Chinese state accounted for only 0.75 percent of the world's export activity, and by 2000, this indicator was 3.86 percent. This means that in 33 years, the volume of products exported abroad increased by 14 times.

China's free economic zones are among the "Asian dragons": close to Hong Kong, Macao and Taiwan, and located on intercontinental trade routes. The convenient location of the SEZs provides an opportunity for rapid development of the Chinese economy. 4 of China's 10 free economic zones are located on the southeast coast of the South China Sea.

Since 1992, the State Council of the People's Republic of China has opened a number of large cities on the border of the country, as well as areas of cities and autonomous regions within the provinces, to free entrepreneurship - building factories and factories, opening companies, developing national handicrafts, and conducting private business. In addition, 15 free trade zones, 32 state-level economic and technological development zones, and 53 newly developed high-tech industrial zones were established in medium and large cities. All of them were given concessions in the payment of duties, export, import, and income taxes. And as you can see, free economic zones are multiplying like yeast and playing a significant role in the development of the great Chinese economy.



With a population of one and a half billion people, China's economy has grown at an unprecedented rate over the past 35 years. After these achievements, China began to pursue a foreign policy known as "open doors" in the world. After the 1978 reforms, China's GDP grew by 9 percent per year. Export of products abroad, foreign exchange earnings also increased sharply. At the same time, the country's GDP per capita increased.

Conclusions and Suggestions

Considered to be one of the developed countries, the country has accumulated a lot of experience in establishing special economic zones that occupy an important place in the economy of the USA, ensuring their effective operation, and using the scientific potential of large educational institutions in this regard. In this direction, by establishing special economic zones in economically stagnant regions of the country, economic (initiating industrial production in the region and reviving inactive industries) and social problems (improving population employment, infrastructure networks) is giving its positive effect in elimination.

China, one of the countries with a good experience in the establishment of special economic zones, is taking an increasingly strong place in the economic development of the special economic zones. It can be explained by the following: the use of special customs and tax incentives beneficial for foreign investors in the special economic zones; the creation of an effective mechanism for the large-scale export of products created as a result of production based on high foreign technologies in special economic zones; wide opportunities for all-round independent innovations aimed at increasing the consumption of material resources in scientific and technical processes and increasing innovations in management to achieve economic development in special economic regions, etc.

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POETIC IDEAL IN THE WORK OF OSMAN AZIM

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Abstract

In the article, the poems of Osman Azim are drawn into the framework of analysis, the brilliance of the writer's work, the special creativity of his greatness is revealed traditional, ideological and artistic interpretation. In the poem of Osman Azim, the effect of shakily research related not only to content, but also to band forms is covered

Keywords: quartet, Ghazal, eights, mukhammas, poetic genre , aruz vase, hijran dashti, raddi matla..

Introduction

Everything is easy for you

Death-like a continuation of living ...

The heart is MoJ'az. The miraculous heart of man disappears when viewed from above over the planets, stars,galaxies –huge worlds that face from the heart towards infinity and become increasingly unthinkable as if .But within this miracle, the universe created by the power of God is infinite, of all Infinity ! Is it not for the fact that he himself is a human being?

Inspiration is the state of creative work of a person. Pushkin clearly and simply described inspiration

"Inspiration is a state of the soul ready to accept vivid impressions, to quickly understand concepts,inspiration is a calm first love .In this ,the heart kicks gup-gup in the passion of future meetings ,yor's incomparably beautiful eyes, smile and faith."

Turgenev described inspiration as “the approach of God ,the harmony of the human soul with thoughts and feelings. “

The inspiration was described simply by Tolstoy :” inspiration is such a prayer that the work to be done suddenly comes right from itself “.

The creativity of the owner of unique inspiration ,the fighter of goodness, the Hunter of poetry all the time ,the great representative of our literature, Osman Azim, motivates us to science.

What would I give you the world

Your markets-the rich bride

The people of the world market are

Take it, I came to sell my heart .Osman Azim



Let the heartless take it, may it love it, may it be loved,

Let him learn to live burning from me

May lovers flirt my heart

Let it not be oppressed, O world, from you

Let me follow you who have a heart

Hot market from honest trades .

Erisin snow from Hearts Taft ,

Grind not to reach any buyer.

The world put my heart on the market... Mahliyo Turgunova

In this four-verse poem, The Creator refers to his entire creation , which is glorified by the word heart,the heart is a body organ that ensures that a person lives in the main life, the writer has his whole body in poetry and pears.

In Dunyong I lived for forty years tikka

Every sharpang shook my body

My God ! This night is also in the dark

The cranes cried somehow

I begged not to sleep –I asked for the morning ,

I said go faster slow step into the night .

I looked at Falak in a hurry at dawn –

My God ! - there is not a single crane in it .

Show the way of the cranes, boray ,

Tell them my pain reveal

"Ana Road" - pointing to the sky

My God ! why is this way so narrow?

This twelve-verse poem gives a man his vision of life a universal meaning in keltrish to junbush .Through the image of the Me –poet in it, the dream of a person who expected mercy from God on a steep foot even before he was forty years old was told in an exaggerated way.The image of the crane in the poem is also not included for nothing .Because the crane is a symbol of Justice,longevity,piety and a loving soul.In the Chinese tradition, a crane is a sign of separate spirits ,immortal spirits .For example ,according to legend, a man named Vanszi Seo flew on a tour to heaven after he managed to live forever.

The crane lives for a thousand years and breathes with a bent neck .Thanks to this, he refreshes his breath.This situation was used by the DAOs .The cranes observe the deceased to heaven and transport Angels.In Japan, the udum of tanning cooked porridge from rice grown in Kuru (Turna)district is spread.Such porridge will give the baby a long life and health.It was believed that the baby chases away evil spirits .

In some traditions, the tour was associated with rain and productivity.For example, the crane is a bird dedicated to the Greek agricultural “goddess “ Kronos.In Christians, the crane is a symbol of pious life and asceticism.As a figurative sign of justice ,while standing on one foot ,elegance is depicted, representing vigilance, and crushing a stone on the other foot.The symbol of the crane Messenger ,ambassador in Uzbek folk oral creativity .



In this poem, The Poet, even when he was forty years old waiting for justice, is on a steep foot, that is, graciously, he connected the night to the dawn, asking for the path of justice on sleepless nights, stating his desire to say his pain to the cranes. The image of the poet is compared to the image of a lover who is plunging into Truth, Justice.

In the poem, Usman says that the elegance inherent in the nature of Azim, the correct understanding of life, the feelings of righteousness bring man to maturity, the exaltation "that way is a gesture to heaven... through his Egypt, and that it is not possible for anyone to walk the way my God! Why is this way so narrow?" expressed through the stanza. His symbolism in this poem includes landscape details such as the world, ghost, night, darkness, turn, Dawn, night, falak, dard, road, Sky, Living steep, twisting the body, crying, begging not to sleep, revealing pain, traditional poetic symbols such as the narrow path, "I begged not to sleep – dawn" by Usman Azim, "Silent Step night", characteristic poetic finds have poetically shaped the impressions, experiences of a man of today's time.

In his poems, Uthman Azim tries to instill his aesthetic ideal in the lyrical narrative by using the image of a universal problem-man and the world with irony. "Uthman is a poet of social problems. He never pulled himself into the pan over the concerns of society. It can even be said that his poetry is fully focused on social issues. Even in his inner intimate Poems, the social tutantriq is always bitter, which defines what a person's personality is like a lakhmus".

The image of a soulful, rebellious, persistent and nationalistic character in the poetry of Osman Azim is revealed through artistic means. "The content of a literary work can also be understood as its essence, and its form as a way of manifestation of Essence. In other words, the content is the creator's thoughts about ochun, his thought and emotional attitude to a phenomenon in reality. And form is the system and way of expressing this relationship. Even more impressively expressed: the content is what the writer means, the form is what he says." To assess the strength of the individual creative thinking of Usman Azim, it is necessary, first of all, to determine the level of interpretation and level of solutions in his approach to topics or images that have acquired traditionalism in world literature. For this, the poet ishidi fully allows.

Usman Azim skillfully uses aruz, the leading weight of our classical poetry, in singdrish, the concept of the national spirit and made a blessed oijod in the ghazal genre. Artistic harmonious examples of poetic genres and forms such as quartet, Ghazal, Octagon, fairy tale, anecdote, narrative, mukhammas, chiston were created in the poet's workhouse. This indicates that the sphere of the poet's poetry is expanding and becoming rich in style, and indicates that the culture of socio-philosophical and psychological analysis is becoming more and more diverse in the interpretation of spiritual moral, intellectual values. In Nazm samples we can witness that form and meaning are in harmony.

In the poetry of Usman Azim, one can see the fruit of shakily research related not only to content, but also to band forms. The poet created poetic verses ranging in finger weight from three syllables to 16 syllables. For example, in the poet's poetry, triplets, New-shaped-looking quatrains (although thoughts that move from line to line should actually be arranged in a total of 4 lines, but by the creator this situation is brought to 14 lines), while the formation



of clauses in different cases is conspicuous, the arrival of words singly in lines or the stroking of clauses is observed. "Astrophysical poem (poetics) is a poem in the form that does not follow the same laws and repetitions. In the structure of an astrophysical poem, one clause can be banded in the fourfold, the other in the binary, and the third in the other (e.g.: octave) manner".

Alisher Navoi Gazali of Osman Azim, who waved a pencil in the weight of Aruz, was a subject and Idea, and also a subject in the genre. :

The Moon did not reach your face-I flew like a dedicated bird

I screamed and broke Falak like a wild bird ,

Dust storm-tanim-I like a God bird,

Like an air bird when entering Ishq Bostonians,

Sunbuli zulfi olurni domi rohim did not know(P. 209

This muxammas consists of 7 items ,a, a,a,a,a,a, b, b, b, b, a..rhymed in order.The ramal Bahri of aruz, a.k. a. the ramali musammani mahzuf weight was created.

In all of muxammas ' items,such as foilotun,foilotun, foilun, afoyl, as well as

There is a paradigm such as-V--/-V--/-V--/-V -.

In the love affair of the image of the love –poet in the hope of Vasl,the oh-Wah war (chirped falakni);tani, the exaggerated image method of filling the body like a flood(pure flood - tanim); the love of the mistress's face to the moon (face of the Moon), the love of herself to a bird (...I flew like a weak bird,...I like a it is observed that it is used.Every banddi last stanza of mukhammas is built on the art of tajahuli orif (ignorance).(I did not know the Sunbuli zulfi olurni domi rohim).

The poet, who made the most of all kinds of Fine Art during his work, refused in the poem "you liked me always", which was able to figuratively describe his opinion through the art of 'matla'(repetition of Matla):

You liked me always ,

Just reveal you haven't done it.

I thought the heart would find ,

When he leaves us ,patience is his will.

O, How Long Have I waited for you-

Here is white hair, here is a wrinkle .

Won my days by pulling

Shum solitude is an angelic Thunder.

I can go behind you,

When the road ends ,the roadless tentrab

But, say, you cry nechun

Do you climb the wall?

No, let him never reach you grind,

I understand-years, andisha...

Just reveal what you did not tell-

You liked me always (P. 195).



In classical poetry ,The Art of Raddi'matla'(repetition of Matla'), found mainly in the work of Navoi and Ogahi ,has found a new form in the work of Usman Azim in modern poetry ,that is, in classical literature, the first verse of the ghazal is intended to be repeated even at the end of this ghazal, while in the poem above this kind of reverberation serves to emphasize once again the main idea that the poet is expressing (you liked me always, I just didn't tell you that reveal).

To the “khamsa”, which Uthman Azim wrote inspired by the great Navoi work, tatabbu's poem has acquired a special form and meaning .Having summed up 5 poems in tatabbu and appearing a EPIC, the poet gives each poem The Name of the Navoi epics .Each epic in it, The” Wonder –ul abror”, is formed as 4 verses, the “ Farhad and shirin”as 32 verses ,the “Layli and Majnun”as 12 verses ,the” SAB'ai sayor “as 32 verses, and the “wall or Saddi Iskandari ” as 2 stanzas, i.e. 1 stanza as 7mitra, and 2 stanzas as 4misra.In it, the poet skillfully used the art of talmeh, expressing in his mood a harekter typical of the heroes of the epic :

Kharmiz in the hijran steppe ,
Shu of Layli-yu Majnun (P. 226

In his work, the conventionality of the form is evident in the art of zamirida . The poet instilled in the forms national tones ,language and style ,strengthening the artistry.

A worthy continuation of the traditions of classical poetry ,firstly ,allows to regularly elevate the artistic and aesthetic thinking of the nation ,and secondly ,ensures a shortage of new mature generations of creators.The poet skillfully used aruz ,the leading system of our classical poetry in the singdrash of the national spirit to the lyrics, poetically synthesized the creative experiences of predecessors through tatbbu and compensation.Enriched our national poetry with new forms.Creative rango-color was able to express poetic form and content in artistic connection as a common element.

Heartbreak I didn't tell you

Horishin of life did not tell you
You knew the world was spinning
Stay one fall I didn't tell you
I did not say –after the breakthrough reached the stack
I didn't go to help myself
I did not tell you this holi ruin
I got into the fall one by one solo
This fall, jonu tan-a fiber silk ,
Swinging at Yale
We were interrupted together in all autumn
For me this year, a lonely Swan...
There is no harm to man
There is no market for Life trading
Let's go without you solo to this fall ...
Now there is no spring of this autumn



The images of autumn ,autumn,autumn ,Stone ,Fire ,Grass, which are so common in the work of the poet, look like the most Sarah Flowers of the writer's flower bed.

Autumn ! yellowed leaves ,the end of the life of the grass, which was hit by a new niche in the spring, the end of the life of the cherished scroll, the end of the life of the autumn season. This poem is also written by the poet, referring to Hofiz Sherali Zhurayev in the qismat scroll. When I observe the poetry of Uthman Azim the teacher also seems to have switched from a Dafa to a figurative love lyric at the end of struggles, shouts, criticism, reproaches and spiritual battles.

Each poet will have a work whose work is considered a flower. The flower of the Othman Azim creativity is undoubtedly the "Bahshiyona " category. In this series, The Poet found a new way of saying the true word baralla. Everything about the hope, longing and harmony of dreams of the Uzbek people, goals and ideas can be found in this category. As Elbek Bakhshi, who took place in the series, said by walking elma el, listening to goh dili lean, goh dili burn, the poet oh tortsa eli Oh pulls, the poet laughs eli laughs. The interpretation of images in the category " Bahshiyona " occurs in harmony with each detail: the misfortune of Oytuma in the pain of bereavement is attributed to such verses that the image of Oytuman causes a person's heart to rub and moisturizes the eyes

The pine tree has star happiness

There is happiness to listen to the heart

Sadness I the luck of progressing.

Do not cry Armon has happiness Oytuman

In the case of the happiness of survival to the unskilled

Inside Ishq there is the happiness of the victim

The flowers of the coat of arms are sap-yellow

Full of yellow is the presence.

As long as the hero feels the taste of misfortune, Elbeek gives him a happy hope: the candle begins the darkness, this misfortune is also a happiness, he has been humbled by the happiness of stardom in the candle. And live within the work comforted you that you are lucky. Yellow is a symbol of bereavement we know: the writer tells The Creature from the Oytuman language that it is full of yellow ran. This iztrobni, the arms of the image of Oytuman, was skillfully sung in lyricism. The series covers the scale of images based on the execution of events.

How wonderful is the fate of the heroes in such works involuntarily bring the reader's emotions to junbush, wave, raise the temperature of the soul. Poets see the world in a special way, they are not like others, because in the invisible mysteries of the universe there is a soul that can see others, a awake perception that can reflect on the meaning of life and the essence of living. But it will not be for him to live by concentrating all these qualities in himself.

The worthy contribution of Usman Azim to the development of Uzbek literature has undoubtedly expanded the artistic world of our literature with his works in colorful genres, enriching the world of artistic thinking. Artistic accompaniment is an figurative perception



of life. do not forget-the heart of the lyric. In The Ballad of the writer under the name "rain" is also embodied in the image of rain writer
 Now autumn has dropped my love to sing
 In hajring, my body is increasingly clear
 Rain-rain my rave cry
 I will not miss if I say that way
 Caught the window foggy tanim
 I clicked the window I love you
 My life is over I love you...

Looking at something in the world, everyone sees and feels everything. Rain is for someone it is a simple phenomenon of nature, for someone it is a relief, and for someone it is a memory. U.Azim is a poet who expanded the "horizon" of Uzbek poetry. We observe the zayli of time, the Armon of love, the truth of life, justice, the horrors of the heart in the image of a single rain. This ballad whispers the love of the image of rain into our ears.

Othman Azim creativity is inextricably linked with the national culture, spiritual world, desires of the Uzbek people, if I observe it closely. Because his work is such a unique phenomenon as Chulpan or Mirtemir poetry in Uzbek adbioti. Accordingly, a deep study of the work of Osman Azim and poets of his generation is considered one of the important tasks of Uzbek literary studies of the present time.

In short, the image in general receives clear outlines as an elementary component of a particular artistic system. The whole work of art is figurative. The creation of an artistic image is, at least, reminiscent of the search for beautiful clothes for a initially ready-made basic idea; the planes of content and expression occur in it in complete harmony.

Usman Azim describes the image of a person, the image object of fiction, and the spring and Autumn, White and black days of human life in a unique poetic style. In his poems, which reflect man and his experiences, the poet describes in the world that the soul of man is extremely fragile, the greatness of man's value in all creation. Uthman Azim justified the fact that a person should realize his self, find his place in society, love his homeland, not only love, be proud of it. The artist skillfully composed in various poetic forms such as triad, quatrain, quintuple, hexadecimal, octave, Ghazal and mukhammas. Whichever poetic form he wrote, the poet glorified the national spirit of Uzbekistan. The works of the poet are unique examples of creativity not only in Uzbek literature, but also in World Poetry, due to the unique artistic expression of the pure national spirit and the philosophy of life.

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**DEVELOPMENT OF STUDENTS' EMOTIONAL INTELLIGENCE AS A SOCIO-PEDAGOGICAL TASK**

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Abstract

The article examines the key role of emotional intelligence (EI) in the educational process. The focus is on the importance of developing EI in students, the impact of this process on academic and social success, and the methods and strategies that can be used to foster emotional development in the educational environment. The article also emphasises the role of educators and in supporting and developing students' emotional intelligence. This material will be useful for both educational professionals and parents seeking to better understand and support their children's emotional development.

Keywords: emotional intelligence (EI), educational process, self-awareness, self-regulation, empathy, motivation, interpersonal skills, role of educator, socio-pedagogical task, EI development techniques, socio-emotional learning, educational environment, interpersonal relationships, students.

Introduction

In today's world, when education and technology are developing at an incredible speed, human emotions and their management are of particular relevance. Emotional intelligence, or EI, is at the centre of much educational and psychological research. It is not just a newfangled term or trend; it is a key element that can determine how successfully a person adapts to rapidly changing life conditions, both professionally and personally. For students, the development of EI becomes the basis for the formation of a complete personality, ready for life's challenges and complexities. In this article we will consider the importance of emotional intelligence in the educational process and methods of its development, as well as the role of educators in this important process[6].

1. Importance of EI development in the educational process.

Emotional intelligence affects many aspects of learning activities. Students with high EI often perform better in academic tasks because they are able to control their emotions, which reduces the likelihood of distraction.

They are also able to build social connections and work in teams more easily.



2. Key aspects of EI development.

Self-awareness: developing the ability to identify and understand their emotions. This helps students understand how they feel in different situations and how their emotions can influence their actions.

Self-regulation: students learn to manage their emotions, which enables them to better cope with stress, frustration and disappointment.

Motivation: emotional intelligence influences how students set and achieve their goals.

Empathy: developing the ability to feel and understand the emotions of others. This skill is critical to building strong and healthy relationships.

Interpersonal skills: students learn how to interact with others, which is useful both in and out of the classroom.

3. Educator's role in developing students' EI.

Educators need to create a favourable atmosphere in the classroom where students feel comfortable expressing their emotions and sharing their feelings. This may include discussing different emotions, applying role-playing games or conducting self-awareness exercises[1].

4. Programmes and techniques for EI development.

There are many programmes and techniques, such as.

Social-emotional learning trainings that include exercises on self-awareness, self-regulation and interpersonal skills.

Meditations and mindfulness practices that help students to focus on the present moment and manage their emotions[2, 3].

5. Barriers and challenges of EI development.

There may be challenges in the development of EI: lack of understanding of the importance of EI, stigmatisation of emotions especially in boys, or lack of trained educators to conduct appropriate programmes.

6. Benefits of EI in the future.

There may be many benefits of EI in the future: successful career achievements, strengthened relationships, and the ability to overcome life's challenges.

7. Parental role in the development of EI.

Parents can encourage conversations about feelings at home, practice active listening, and teach children effective ways to express their emotions.

8. Additional resources and materials.

There are various books, online courses, and workshops that provide tools and resources for developing EI in students.



Emotional intelligence is not just a trendy concept or an additional skill - it is a fundamental aspect of human development that can significantly influence an individual's success in all areas of life. In an educational environment where social interactions and different feelings are encountered every day, the development of students' EI is at the centre of attention[4]. Educators, parents and professionals must join forces to provide the young generation with the tools to effectively manage their emotions and understand the emotions of others. This is the only way to create an educational environment where every student feels understood, supported and ready to face a world full of emotional challenges and opportunities[5].

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WHAT ARE COMPLEXONS? APPLICATION OF COMPLEXONES IN MEDICINE

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Abstract

This article discusses complexons, the composition and role of complexons in medicine. Studying the processes of interaction of metals with ligands, which are features of the properties of complexones, is the key to the search for new drugs. Complexones are an important antidote for heavy metal poisoning.

Keywords: Complexon, antidote, EDTA, chelate, chelation therapy, ligand, biocomplex, biometal, homeostasis, heavy metals.

Introduction

COMPLEXONES, organic compounds containing **N**, **S** or **P** atoms capable of coordination, as well as carboxyl, phosphonic and other acid groups and forming internally stable complex compounds with metal cations - chelates. The term "Complexon" was introduced in 1945 by the Swiss chemist G. Schwarzenbach to designate aminopolycarboxylic acids exhibiting the properties of polydentate ligands.

The simplest representative of complexons is the amino acid glycine, H_2NCH_2COOH . In the glycine molecule, the amino group $-NH_2$ is separated from the carboxyl group $-COOH$ by a single methylene group $-CH_2$. When the carboxyl group is deprotonated, the glycine ion can act as a bidentate ligand and form chelate complexes with metal ions.

Complexones are colorless crystalline substances, usually soluble in water, aqueous solutions of alkalis and acids, insoluble in ethanol and other organic solvents; dissociate in the range of pH values 2–14. In aqueous solutions with cations of transition **D**- and **F**-elements, alkaline earth and some alkali metals, complexones form stable intra-complex compounds - complexonates (mono- and polynuclear, medium, acidic, hydroxocomplexonates, etc.). Complexonates contain several chelate cycles, which causes high stability of such compounds. chelates, chelate compounds (from lat. chela - claw), also intra-complex or cyclic complex compounds - organometallic complex compounds, formed by the interaction of metal ions with polydentate (that is, having several donor centers) ligands. **Chelates** contain a central ion (particle) - a complexing agent and ligands coordinated around it. The internal sphere of the chelate consists of cyclic groups, including



the complexing agent. The body continuously develops and destruction of biocomplexes from biometal cations (iron, copper, zinc, cobalt) and bioligands (porphyrins, amino acids, polypeptides). Metabolism with the environment maintains the concentration of the substance at a certain level, ensuring the state of metal-ligand homeostasis.

The distribution of a particular metal cation between bioligands in biomedica is determined both by the strength of the formed complexes and by the concentrations of these ligands. Each of the biometal cations is characterized by its own set of metal-ligand equilibrium reactions. The intake, metabolism, accumulation and release of metal cations (and, in general, any microelements) are regulated by a special system of microelement homeostasis. In total, there are thousands of pathological phenomena - microelementoses associated with certain metal excess or metal deficiency conditions. Disturbance of metal-ligand homeostasis is possible for various reasons: due to a deficiency or excess of biometal cations, due to the intake of toxic metal cations, due to the entry or formation of foreign ligands.

To maintain metal-ligand homeostasis and remove toxic metal ions from the body, complexons - polyaminopolycarboxylic acids - are increasingly being used. In medicine, a special direction has emerged associated with the use of complexones to regulate the metal-ligand balance - chelation therapy.

Chelation therapy is a procedure for treating mercury, lead and other types of heavy metal poisoning. A chelating agent is introduced into the body, which binds to metals, deactivates them and removes them through the urinary system.

Heavy metals cause abnormalities in intracellular functions and inflammation. This inflammation damages the cells and blood vessels themselves. As a result, we have decreased function of the heart, memory, liver, thyroid gland, parathyroid glands, etc. In addition, the immune system and brain function are suppressed.

Removing these harmful heavy metals from the body will speed up the recovery of the heart and blood vessels, improve liver and kidney function, increase blood flow to the brain and much more.

Ethylenediaminetetraacetic acid, **EDTA** (from the English EDTA), complexon **II** - an organic compound, a tetrabasic carboxylic acid with the chemical formula $(\text{HOOCCH}_2)_2\text{N}(\text{CH}_2)_2\text{N}(\text{CH}_2\text{COOH})_2$, white fine-crystalline powder, slightly soluble in water, insoluble in most organic solvents, soluble in alkalis, forms ethylenediaminetetraacetate salts with metal cations. Prepared by condensation of ethylenediamine with monochloroacetic acid. The compound was first synthesized in 1935 by Ferdinand Münz, who prepared the compound from ethylenediamine and chloroacetic acid.

EDTA is used in the form of disodium salt dihydrate (Complexon **III**, Trilon B, $\text{Na}_2\text{-EDTA}$) - in the textile, leather, paper, paint and varnish industries, in the production of metals, rubber, in color cinematography, for water softening. In analytical chemistry, EDTA allows the determination of more than 60 elements. In medicine, EDTA is used to remove radioactive and toxic metals from the body, for blood preservation, in case of overdose of cardiac glycosides, etc. In toxicology, cobalt salts of EDTA are used as an antidote for



poisoning with hydrocyanic acid or cyanogen chloride. In dentistry, it is used for endodontic treatment of tooth canals; it demineralizes and softens surface dentin. In pharmaceutical technologies, EDTA is used to enhance the permeability of drugs through mucous membranes.

THE USE OF COMPLEXONES AND COMPLEXONS IN MEDICINE

The complexions occupy an important place in the development of medicinal and diagnostic tools. Their ability to penetrate cell membranes, manifest the functions of biocatalysts, imitate the functions of certain enzymes, etc., has been established. On the basis of complexones, mineral metabolism regulators, bactericidal and antiviral drugs, anti-allergenic substances, diagnostic preparations, etc. were made. A simple list of drugs used would make a solid list. One can call, for example, a xydiphon - dikalydinatrium salt of OEDF. This drug has passed clinical trials and is approved for use in the treatment of urolithic disease, salt deposition, kidney disease, smooth muscle spasms, etc. The chelating agent can be administered intravenously, intramuscularly or orally, depending on the agent and type of poisoning. The German Environment Agency (Umweltbundesamt) included **DMSA** and **DMPS** in the list of two of the most useful and safest available chelating agents.

chelator	Used in
dimercaprole (British anti-lewisite; BAL)	acute arsenic poisoning acute mercury poisoning lead poisoning (in addition to EDTA poisoning) lewisite (for which it was developed as an antidote)
dimercaptosuccinic acid (DMSA)	lead poisoning arsenic poisoning mercury poisoning
Dimercaptopropanesulfonate (DMPS)	severe acute arsenic poisoning severe acute mercury poisoning
penicillamine	Mostly: copper toxicity Sometimes additional therapy for: gold toxicity arsenic poisoning lead poisoning rheumatoid arthritis
Ethylenediaminetetraacetic acid (disodium calcium versenate) ($\text{CaNa}_2 - \text{EDTA}$)	lead poisoning
Deferoxamine, Deferasirox and Deferiprone	acute iron poisoning iron overload

Benefits of Chelation

Rejuvenation of the heart and cardiovascular system

Chelation therapy has been widely used by alternative practitioners since the **1950s** to treat heart disease. Chelating agents interact with calcium accumulated in the arteries, which



helps clear plaque from the blood vessels, reduce scar tissue, increase blood flow to the heart, and lower blood pressure. It also helps reduce inflammation and prevent damage to blood vessels.

Prevent neuro-degeneration

There are many studies that demonstrate that increased deposits of iron and toxic heavy metals contribute to neurological degeneration and diseases such as Alzheimer's disease, Parkinson's disease and multiple sclerosis. Chelation therapy has been researched and used to treat and reduce the risk of neurological disorders. The idea is that the chelator reopens clogged blood vessels in the body and brain. Chelation therapy can also help improve memory and mental clarity in older adults.

Reduce pain and inflammation

Ethylenediaminetetraacetic acid (EDTA), which is used as a chelating agent, is also an antioxidant. It can repair damage from free radicals and toxins; this helps reduce inflammation and pain. EDTA is used as a maintenance treatment for many age-related diseases, including autoimmune chronic inflammatory diseases such as osteoarthritis and rheumatoid arthritis.

The chemistry of complexones is undergoing a period of intensive development. The processes of accumulating information about the composition, structure and properties of complexonates, the conditions of their existence, and real and potential areas of their practical use are proceeding at a high pace. The study of the unique properties of complexons is far from complete, and new major discoveries are still ahead.

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**THE ROLE AND IMPORTANCE OF GRAPHIC REPRESENTATION IN THE ACTIVITIES OF FUTURE DESIGNERS**

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Abstract

This article delves into the crucial role that graphic representation plays in the activities of future designers. With a focus on the evolving landscape of design, we explore the various dimensions of graphic representation, its impact on communication and creativity, and its significance in shaping the work of designers. The article combines literature analysis, a discussion of methods, presentation of results, and a thorough examination of implications to provide a comprehensive understanding of the subject.

Keywords: Graphic representation, design, future designers, visualization, communication, creativity.

Introduction

In the dynamic world of design, graphic representation stands as a cornerstone, enabling designers to convey ideas, innovate, and communicate effectively. This article aims to explore the multifaceted role of graphic representation in the activities of future designers, shedding light on its significance in the context of contemporary design practices.

Today, architecture is developing at a rapid pace. At the same time, the emphasis on not only the appearance of buildings and structures, but also on their environment, landscape is gaining momentum. This makes it possible to set new and new tasks for architects and designers, without a doubt their solution directly depends on the professional skills of representatives of this field.

While the deep penetration of computer technology into these processes leads to the improvement of the activities of artist-designers, the scale of tasks in this regard also grows and becomes more complex, and the needs for the artistic and creative abilities of the owners of these professions also increase. In other words, the customer, for example, pays tribute to the skill of the creator working on the design of the landscape, able to perform the necessary sketches through drawings, to the ability to express his ideas in preliminary drafts. And sketches (drafts) will undoubtedly serve as a tag-ground, a basis for the project to be completed. Often sketches reflect the main details, views, novel ideas that are intended to be used for the project. Therefore, the role and importance of graphic representation performed by skilled designers is high.

Currently, research continues on the revision and implementation of the theoretical and methodological foundations of the teaching of pencil painting in the directions of



architecture and design of higher educational institutions, the improvement of its scientifically based new path, form, content and methods. Because, pencil painting is an important foundation not only for the field of fine art, but also for the field of architectural graphics.

A review of existing literature highlights the historical evolution of graphic representation in design and its transformative impact on the creative process. From traditional sketches and drawings to digital visualization tools, the literature provides insights into how graphic representation has adapted to technological advancements and changing design paradigms. To gain a deeper understanding, this article employs a qualitative research approach. Interviews with experienced designers, analysis of design projects, and surveys among design students are conducted to gather diverse perspectives on the role of graphic representation in their work. The methods section details the criteria for participant selection, data collection, and analysis procedures¹.

Graphic representation plays a crucial role in the activities of future designers across various fields. Whether in graphic design, industrial design, architecture, or other creative disciplines, effective visual communication is essential. Here are some key aspects of the role and importance of graphic representation for future designers:

Communication and Expression:

- Graphic representation serves as a language for designers to communicate their ideas visually. It allows them to express concepts, emotions, and messages in a way that goes beyond words.
- Visual elements such as color, form, and composition can convey meaning and evoke specific responses, enabling designers to effectively communicate with their audience².

Concept Development:

- Designers often use sketches, drawings, and other graphic representations in the early stages of the design process to explore and develop concepts.
- Visualizing ideas helps designers to refine and iterate on their concepts before moving into more detailed and complex stages of the design process.

Problem Solving:

- Graphic representation aids designers in problem-solving by providing a visual framework for analyzing and addressing design challenges.
- Diagrams, flowcharts, and other visual tools help designers map out processes, identify potential issues, and devise creative solutions.

¹ García-García, C., Chulvi, V., Mulet Escrig, E., Felip, F. (2016) Comparative study of digital sketching tools for conceptual design of new products. In Proceedings of 20th International Congress on Project Management and Engineering, Cartagena, Spain (pp. 1028-1040).

² Bishop, I., & Lange, E. (2005). Presentation Style and Technology. En I. Bishop & E. Lange (Eds.), Visualization in landscape and environmental planning: technology and applications (pp. 68-77). New York: Taylor&Francis.



User Experience (UX) Design:

- In UX design, graphic representation is essential for creating wireframes, prototypes, and user interfaces. These visuals help designers plan and test the user experience before final implementation.

- Flowcharts and user journey maps are used to understand and optimize the user's interaction with a product or service.

Presentation and Pitching:

- Future designers need strong graphic representation skills to present their ideas persuasively. Visual presentations often have a more significant impact than verbal descriptions alone.

- Whether presenting to clients, stakeholders, or team members, designers use graphics to convey their vision convincingly³.

Collaboration and Teamwork:

- Graphic representation facilitates collaboration within design teams and with clients. Visual materials provide a common language that team members can use to share and build upon ideas.

- Designers can use visual aids to convey complex concepts to individuals with different backgrounds and expertise.

Technology Integration:

- As technology continues to advance, designers are increasingly incorporating digital tools and software for graphic representation. This includes 3D modeling, virtual reality, and augmented reality, expanding the possibilities for visualizing and presenting designs.

Branding and Marketing:

- Graphic representation is fundamental in creating brand identity and marketing materials. Logos, color schemes, and other visual elements contribute to the overall branding strategy.

- Designers must consider how graphic elements will resonate with the target audience and effectively communicate the brand's values and message.

In summary, the role of graphic representation in the activities of future designers is multifaceted, encompassing communication, problem-solving, collaboration, and the overall design process. As technology evolves, designers will continue to leverage new tools and techniques to enhance their graphic representation skills and create innovative, visually compelling solutions.

In the discussion section, the results are contextualized within the broader framework of design practices. The article explores the implications of the findings on education, professional development, and the future of design. Additionally, the discussion delves into

³ García-García, C., Chulvi, V., Galán Serrano, J., Felip, F., Royo González, M. (2015) The use of social networks for invigorate the communication during the conceptual design phase in virtual projects. In Proceedings of 19th International Congress on Project Management and Engineering, Granada, Spain (pp. 277-290). AEIPRO



the challenges posed by emerging technologies and the ethical considerations related to graphic representation in design.

Conclusions

Drawing from the literature analysis, methods, and results, the article concludes by summarizing key insights into the pivotal role of graphic representation in the activities of future designers. It emphasizes the necessity for a balanced approach, leveraging both traditional and digital tools, and the need for ongoing adaptation to technological advancements.

The article concludes with suggestions for educators, practitioners, and policymakers to integrate a comprehensive understanding of graphic representation into design curricula. Emphasizing continuous learning, fostering interdisciplinary collaboration, and staying abreast of emerging technologies are proposed as strategies to prepare future designers for the evolving demands of the field.

In conclusion, this article provides a holistic exploration of the place and importance of graphic representation in the activities of future designers, offering valuable insights for academics, professionals, and enthusiasts alike. As the design landscape continues to evolve, understanding the nuances of graphic representation becomes increasingly imperative for fostering innovation and effective communication in the world of design.

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**EDUCATION OF A CHILD BY MUSIC IN THE EARLY PERIOD OF LIFE**

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Abstract

Early age is a variable component of the program and can be changed, supplemented in connection with calendar events and the plan for the implementation of collective and individual musical and gaming features. This educational and methodological complex is designed for 3rd-year full-time students majoring in Music Education. The discipline "music in a preschool educational institution" is included in the national - regional (university) component of the graduate qualification - music teacher cycle.

Keywords: pedagogical psychology, teaching vocal music, motivation of learning, psychology, development of young singers.

Introduction

Methodical work in an educational institution of additional education for children is most effective if it is organized as an integral system. Its success depends on the interest of teachers in professional development, on the satisfaction of the staff with the organization of the educational process at school.

The purpose of methodological and innovative work is to increase the professional competence of teachers' pedagogical skills.

Tasks:

1. Improving the structure and content of academic disciplines in educational fields.
2. Improvement of teaching methods of training sessions.
3. Improving the scientific and pedagogical qualifications of teachers.
4. Improving the educational and methodological support of training sessions.
5. Working out ways of forming readiness for creative self-realization of the child's personality (within the framework of school development).

The most priority directions of the methodical work of the school are:

- ensuring the management of the educational process at school;
- information support of the educational process, publishing;
- providing conditions for the study, generalization and dissemination of best practices;
- provision of analytical expertise;



-providing conditions for continuous improvement of professional skills of teachers.

To ensure that the content of the methodological work meets the needs of teachers and contributes to their self-development, the work of the school is planned in accordance with the professional difficulties of the school staff. Planning of methodological work is preceded by an in-depth analysis of each of the methodological departments in terms of the impact of their activities on the growth of pedagogical and professional skills.

The analysis of methodological work is carried out in the following areas:

- statistics of teaching staff by education, experience, age, qualification categories;
- analysis of the work of the methodological council;
- analysis of the work of methodological departments;
- relevance of the topics of the pedagogical council, seminars, master classes;
- work with young specialists;
- certification of teaching staff, its results, the result;
- use of new educational and author programs;
- the main disadvantages, problems and ways to solve them.

It is impossible to talk about the prospects of development, about the implementation of the program of modernization of education, about the introduction into pedagogical practice of new forms and methods of organizing the educational process without systematic work on teacher training. The system of professional development of teaching staff includes the following stages:

- study of theory: new pedagogical technologies, forms and methods of organizing the educational process;
- testing in practice of certain innovations, practical application of theoretical material;
- demonstration of practical skills in the use of modern pedagogical technologies;
- generalization of experience, analysis of problems of achieved results, ways to solve these problems, the activities of the school to improve the professional skills of teachers.

In order to fully implement the plans of methodological and innovative work, teachers and concertmasters take an active part in the work of specialists of culture and art "Bukhara Regional Educational and Methodological Center".

The teachers of the school have mastered and are mastering new educational technologies and techniques, since today there is an increased need for a teacher who is able to modernize the content of his activities through creative updating through the use of modern educational technologies.

In general, the following results can be considered in working with teachers:

- stability and effectiveness of certification based on modern pedagogical technologies;
- improvement of theoretical and practical training of teachers and issues related to the improvement of pedagogical technologies;
- development of practical materials and creative reports using modern pedagogical technologies;
- good indicators of the quality and effectiveness of lessons, more than 75% of lessons are rated "excellent" and "good";



-results of innovative activity of methodological associations and individual teachers.

The use of ICT technologies in the development of musical and creative abilities of preschoolers musical director. The modern world is constantly changing, and our children are changing with it. Accordingly, the education system imposes new requirements for the upbringing and education of preschool children. To date, one of the ways of modernization in education is informatization. Computers have long been an integral part of our lives. Even in kindergarten, it is already impossible to imagine working without them. No one is surprised that many children from preschool age are fluent in computers, for them it is another source of information and development. Therefore, it is important for us teachers to create conditions for a child to adapt to modern life with the help of informatization, it is important to help him enter the world of new technologies, teach him to work with information, organize the learning process so that the child is actively and enthusiastically engaged in music classes, that is, to create conditions in which the child will develop imagination and creative abilities, to show cognitive initiative, will satisfy their need for self-realization. A combination of traditional teaching methods and modern information technologies, including computer ones, can help a music director in solving these tasks. The use of multimedia technologies in music classes gives a number of advantages: - children perceive the material better, interest increases, - individualization of learning, development of creative abilities is carried out. ICT in music education of preschool children can be used as a means presented on the slide. At the same time, the use of ICT makes it possible to effectively develop all types of perception in preschoolers and schoolchildren (auditory, visual, sensory), as well as to use all types of memory (visual, figurative, auditory, etc.). When conducting research at school No. 30, the teacher of the Faculty of Art Studies, the Department of "Music Education" mentors - senior teachers Nurullaev F.G. and Kholikov K.B. the use of ICT effect in school No. 30 of Bukhara visual, figurative, auditory, etc. The use of various audiovisual means (music, graphics, animation) enriches the training material. Since multimedia technologies are characterized by the combination of various types of information presented (speech, music, drawing), therefore, they have the greatest impact on the formation of a child's personality. But at the same time, it is necessary to take into account the age characteristics of preschool children, each element of multimedia technologies should be thought out and understood from the point of view of children's perception, the material should contain elements of the unusual, surprising, unexpected and arouse children's interest in the educational process, an important point is the change of types of musical activity.

The predominant form of thinking of preschool children is visual-imaginative thinking. Therefore, in my work with children, I often use the display of educational films, fairy tales, cartoons, in which the masterpieces of world classics sound, classes relevant to a particular topic, presentations, video illustrations to accompany musical compositions when listening to music, musical and didactic games, quizzes, test tasks, contests. Thus, a single process of imaginative perception and active mental activity of children is organized. Having joined the work on the use of ICT, I came to the conclusion: that the means of new information technologies should be included in all types of musical activities in kindergarten: listening



to music, singing, musical and rhythmic movements, musical and didactic games, children's musical creativity.

When perceiving music, it can be a demonstration of portraits of composers, illustrations, reproductions of a piece of music, a selection of slides or videos. With the help of ICT, children can virtually get into a concert hall, study the work of composers, get acquainted with different musical genres, musical instruments. It is interesting, bright and accessible to introduce preschoolers to different types of art, such as theater, ballet, opera, demonstrating not only illustrations, but also videos. Multimedia presentations make it possible to enrich the process of emotional and imaginative cognition, arouse the desire to repeatedly listen to a piece of music, help to remember the musical composition proposed for listening for a long time, visual perception of the studied objects allows you to perceive the material presented faster and deeper, diversify the impressions of children. (watching the video) Singing occupies a leading place in the system of musical and aesthetic education of preschool children.

But at the same time, it is very important to comply with the requirements of the State Standard of Uzbekistan presented on the screen. Computer programs can be used to create multimedia manuals. Thus, the use of computer technologies in music education contributes to increasing interest in learning, its effectiveness, develops the child comprehensively, activates parents in matters of musical education and development of children. For a teacher, Internet resources significantly expand the information base in preparation for classes related not only to the world of music, but also to the world of art in general. And the ability to use a computer allows you to develop modern didactic materials and apply them effectively. But do not forget that the use of ICT in the musical education of preschoolers is only a means to realize the goals and objectives set for the teacher. No matter how positive, huge potential information and communication technologies have, they cannot and should not replace the live communication of a teacher with a child. The dominant role in musical education always remains with the musical director.

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**PHARMACOKINETIC PARALLELS OF GENTAMICIN IN BLOOD, LYMPH
NODES AND SOFT TISSUES OF A GUNSHOT WOUND TO AN EXTREMITY
BY DIFFERENT METHODS OF ADMINISTRATION**

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Abstract

The widespread use of firearms with high kinetic energy in local military conflicts has led to an increase in the number of severe wounds to the extremities, characterized by significant damage to soft tissues, blood vessels and multiple fractures [4,6,10]. In the course of providing modern medical care to the wounded in Afghanistan and the Chechen Republic, it was found that in 28% of cases, gunshot wounds to the extremities were complicated by purulent-infectious processes [1,11,15].

At the end of the 20th century, both in the CIS countries and in the world as a whole, there was a sharp increase in the number of gunshot injuries among the civilian population [3,9]. Today, gunshot injury is an urgent problem not only for military medicine but also for civilian health care.

The presence of inevitable bacterial contamination and massive destruction of tissues of modern gunshot wounds leads to a large number of purulent complications, which necessitates continuous improvement of local and general treatment methods [4].

A gunshot wound due to primary contamination, the presence of wound detritus, areas of soft tissue damage usually heals by secondary intention. In the event of primary microbial contamination of the wound, "street" strains, as well as saprophytes from the skin, enter it. The predominantly lymphomatous spread of the infection leads to the formation of abscesses near the wound, phlegmon, severe wound edema, and sepsis. In this regard, the methods of endolymphatic antibiotic therapy and stimulation of lymphatic drainage are of particular relevance [7,10].

Introduction

In recent years, along with surgical methods, a number of clinics have successfully used regional lymphotropic antibiotic therapy with regional lymphatic stimulation to influence a purulent wound [2,5]. However, clear parameters, indications, and the possibility of using regional lymphotropic antibiotic therapy with regional lymphatic stimulation in a complex of therapeutic measures for gunshot wounds of the extremities have not been developed.

To date, the possibilities of regional lymphatic stimulation and lymphotropic antibiotic



therapy, for gunshot wounds of the extremities, in the prevention and treatment of purulent septic complications have not been sufficiently studied. The study of the role of lymphatic stimulation and lymphotropic antibiotic therapy in the complex treatment of soft-tissue gunshot wounds seems promising in terms of combating wound edema and microcirculation disorders. The possibility of full penetration of antibiotics into the tissues of the zone of molecular concussion, blood flow and regional lymph nodes in case of gunshot wounds is not clear. Therefore, it is necessary to carefully study the ultrastructure and pharmacokinetics of antibiotics, as well as to determine the possibilities of lymph stimulation and lymphotropic antibiotic therapy of the wound process.

The clinical efficacy of lymphotropic therapy with regional lymphatic stimulation in the treatment of gunshot wounds in the extremities requires study.

MATERIALS AND METHODS

The clinical part of the work was carried out in the Andijan branch of the RCMP on the events of the terrorist attack on May 13, 2005 in the city of Andijan. During this period, 169 victims with gunshot wounds to the extremities were analyzed.

Distribution of the wounded by gender, age, and by the nature of surgical interventions.

All patients (169) with gunshot wounds to the extremities were divided into 4 groups according to the nature of injuries and complications, each of which consisted of the main group, where the methods of lymphatic therapy were used in the complex of therapeutic measures and the control group, where the treatment was carried out by traditional methods.

Characteristics of groups of victims:

Group I. Gunshot wounds of the soft tissues of the limb (59):

Main - 40 wounded

Control - 19 wounded.

Group II. Gunshot bone fractures, without extensive defect and soft tissue damage (31):

Main - 16 wounded

Control - 15 wounded.

III group. Gunshot fractures of bones, with extensive damage to soft tissues (42):

Main - 26 wounded

Control - 16 wounded.

IV group. Infectious complications of gunshot wounds to the extremities (37):

Main - 25 wounded

Control - 12 wounded.

Experimental research consisted of 2 stages. The first stage consisted of modeling a standard gunshot wound on the right lower limb of the rabbit according to the above-described method, as well as taking blood, removing the inguinal lymph nodes and soft tissues of the area of the gunshot wound. This part of the experiments was carried out at the Central Scientific Research Laboratory of the Andijan State Medical Institute.

The second stage consisted of determining the concentration of the antibiotic for various methods of its administration in biological fluids and tissues, as well as studying the pharmacokinetic efficacy of the lymphotropic method of antibiotic therapy. It was held in



the center of genomic technologies of the Institute of Genetics and Experimental Biology of Plants of the Academy of Sciences of the Republic of Uzbekistan (leading researcher, Ph.D. G. Mavlanov).

40 rabbits of both sexes weighing 5-6 kg under Calypsol anesthesia were inflicted with a gunshot wound to the right lower extremity and a series of experiments were carried out. We used gentamicin to study the pharmacokinetics. Gentamicin was administered to animals once in an amount of 1 mg/kg, which corresponds to the average therapeutic dose for an adult.

In the first series of experiments, 10 rabbits were injected lymphotropically (LT) according to the method described above gentamicin.

In the second series (control), 10 rabbits were injected with gentamicin subcutaneously (PC) without the use of lymph stimulant.

In the third series (10 rabbits), gentamicin was injected intramuscularly (IM) into the thigh area.

In the fourth series of experiments (10 rabbits), gentamicin was injected into a peripheral vein (iv).

To determine the concentration of the antibiotic, blood serum in a volume of 1–4 ml was taken 0.5, 1, 3, 6, and 24 hours after the administration of gentamicin. After 6 hours, some of the animals after i / m (5 rabbits), i / v (5 rabbits), and s / c (5 rabbits), as well as l / t (5 rabbits) were deliberately withdrawn from the experiment by introducing increased doses of Calypsol. The other part of the animals after l / t (5 rabbits) and after s / c, i / m, i / v (5 rabbits in each of the series) methods were withdrawn from the experiment after 24 hours. This made it possible to extract the inguinal lymph nodes and pieces of soft tissue from the area of the gunshot wound within the specified time frame. The tissues were homogenized by rubbing with quartz sand. Distilled water was added to the homogenate. The resulting suspension was centrifuged for 30 min at 2500 pm. The concentration of gentamicin was determined in the supernatant.

RESULTS AND DISCUSSION

For a more visual presentation, it is advisable to draw pharmacokinetic parallels of lymphotropic and traditional (intramuscular, intravenous, and subcutaneous) methods of gentamicin administration. Analysis of the kinetics of gentamicin in the blood for various routes of administration (Fig. 1) shows that traditional methods create a peak concentration in a period of time equal to 0.5-1 hour. Then the concentration drops rather quickly and by 6 hours from the moment of administration the level of the drug in different animals ranged from "traces" of the antibiotic to 1.6 $\mu\text{g} / \text{ml}$. Average concentration values did not reach therapeutic values. With lymphotropic administration, the highest concentration falls on a time period of 1 hour and this indicates a relatively rapid penetration of the drug in a sufficiently high concentration into the blood. In the future, the curve (Fig. 2) is less gentle than with intramuscular and intravenous administration (Fig. 3). After 6 hours, the concentration of the antibiotic in the blood is 1.8-3.4 times higher with lymphotropic administration than in experiments with intramuscular, intravenous, and subcutaneous



administration of the drug. After 24 hours, with traditional injections, gentamicin in blood was not detected in any of the animals. Lymphotropic administration, on the other hand, created gentamicin concentrations close to therapeutic ones, on average $1.07 + 0.23 \mu\text{g} / \text{ml}$. These concentrations are inhibitory for most microorganisms that are most commonly encountered in surgical practice (Figure 4)

It should be noted that the resulting subtherapeutic blood concentrations 24 hours after a single lymphotropic administration of the drug in an average therapeutic dose make it possible to conduct lymphotropic antibiotic therapy once a day.

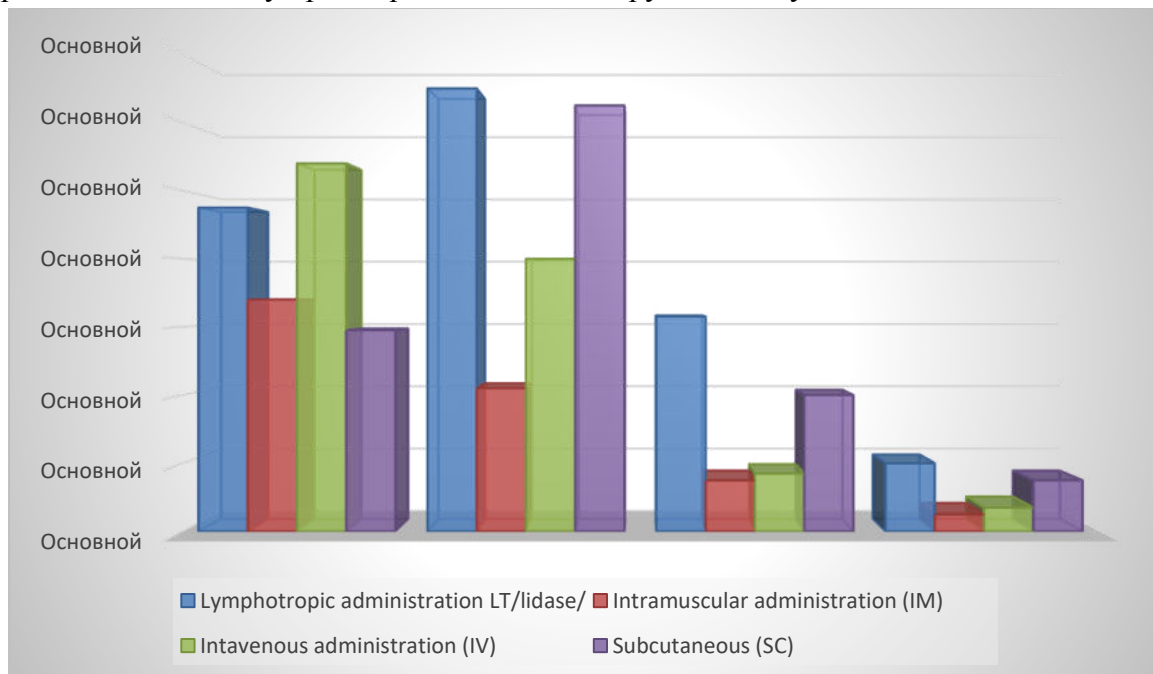


Fig. 1 Dynamics of the concentration of gentamicin in the blood after various methods of antibiotic administration at a dose of 1 mg/kg

Summarizing the data of experimental studies on the content of gentamicin in the blood, we can say that the method of lymphotropic antibiotic therapy, when using an average therapeutic dose of an antibiotic administered once, provides more stable and long-term blood saturation compared to traditional methods.

Comparison of the content of gentamicin in the inguinal lymph nodes and soft tissues of the gunshot wound of an extremity with various methods of application showed that 6 hours after administration in the inguinal lymph nodes the highest concentration corresponding to $1.44 + 0.64 \mu\text{g} / \text{g}$ is created with the lymphotropic method (Fig. 3). With intramuscular injection after 6 hours, only "traces" of the antibiotic were noted in the inguinal lymph nodes.

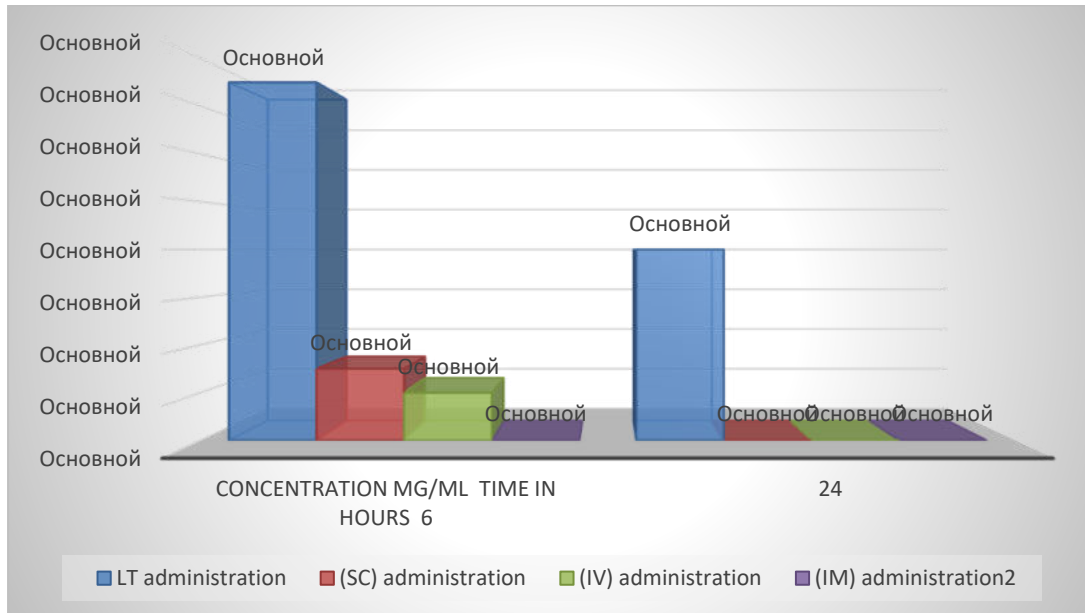


Fig. 2. Dynamics of the concentration of gentamicin in the inguinal lymph node after various methods of antibiotic administration at a dose of 1 mg/kg.

In the soft tissues of the gunshot wound (Fig. 2) after 6 hours with intramuscular and subcutaneous administration, the antibiotic was either not detected or contained in insignificant concentrations. After intravenous administration, the concentration of the antibiotic in soft tissues remained low ($0.12 + 0.06$). The lymphotropic method provided higher concentrations in soft tissues and lymph nodes of the limb. And even after 24 hours, with lymphotropic administration, gentamicin was contained in the inguinal lymph nodes and soft tissues of the gunshot wound of the extremity at concentrations ranging from "traces" to $0.87 \mu\text{g} / \text{g}$, whereas with traditional methods the drug was not detected in the tissues under study.

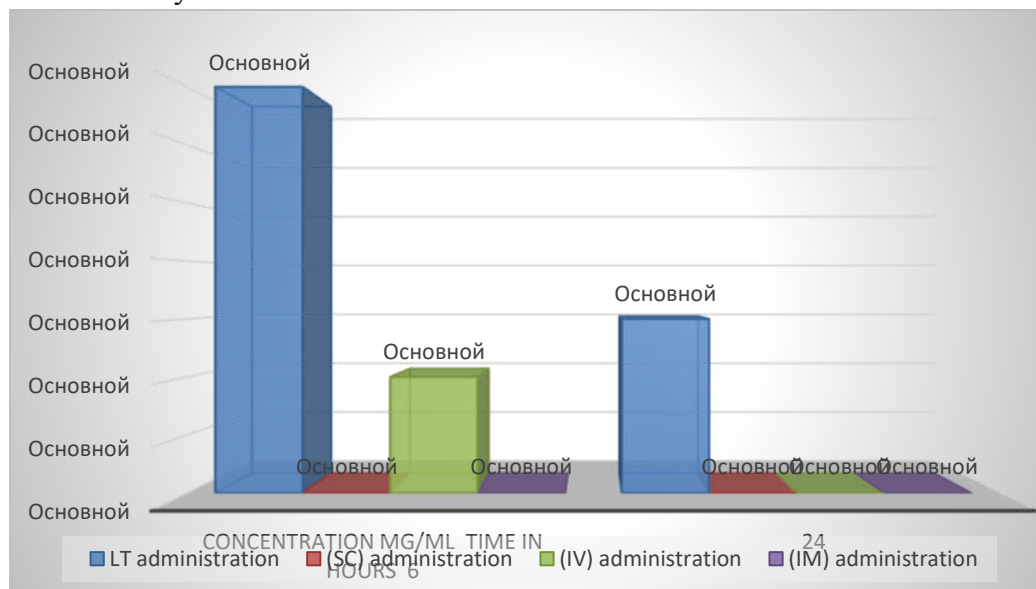


Fig. 3. Dynamics of gentamicin concentration in muscle tissue of a gunshot wound to an extremity after various methods of antibiotic administration at a dose of 1 mg/kg.

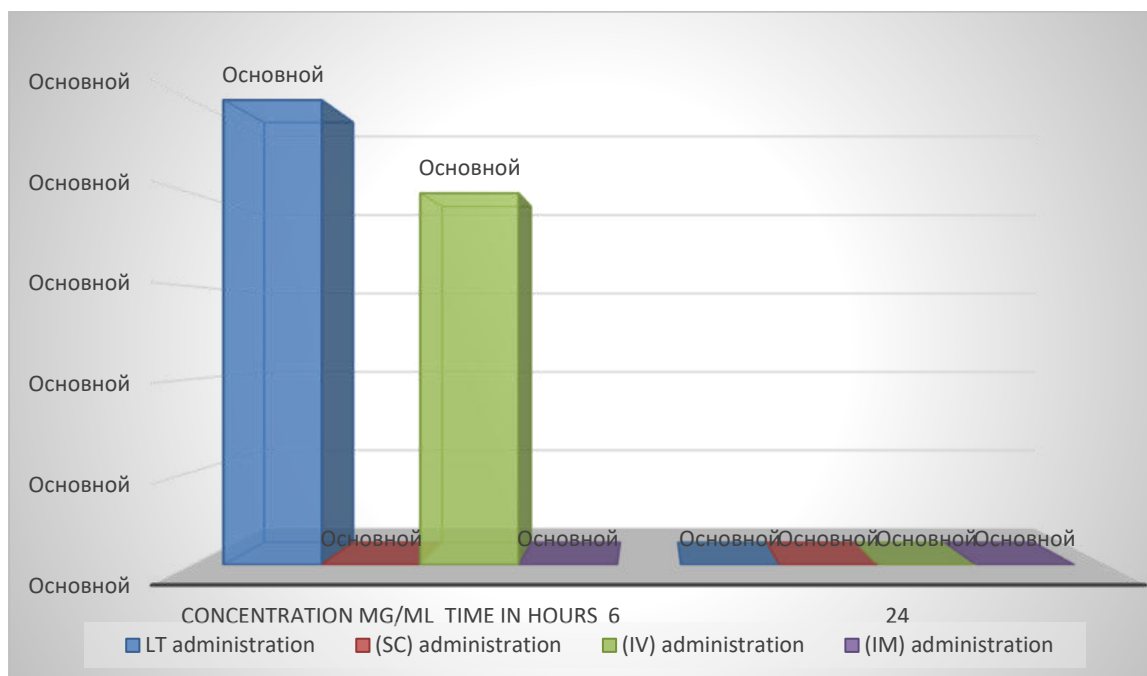


Fig. 4. Dynamics of the concentration of gentamicin in the subcutaneous tissue of a gunshot wound to an extremity after different methods of administration of an antibiotic at a dose of 1 mg/kg.

Thus, experimental studies show that a relatively high and long-term content of gentamicin in the lymph nodes is achieved with the lymphotropic method. The antibiotic introduced by this method is contained in the soft tissues of the gunshot wound of the extremity for a longer time than with traditional methods.

CONCLUSIONS

Lymphotropic antibiotic therapy provides in the blood, lymph nodes, and soft tissues of a gunshot wound a higher and long-lasting level of therapeutic concentration of gentamicin compared to traditional methods of administration, while the daily dose of antibiotics injected and the number of injections are reduced by 2 or more times.

The use of lymphotropic antibiotic therapy and radar, along with surgical treatment of wounds, is an effective method of treating soft tissues of the extremities; it promotes fragmentation and rejection of non-viable tissues, a rapid decrease in inflammation, and an expansion of indications for the imposition of primary sutures, provides early (5-6 days) autodermoplasty in case of extensive defects.

ACKNOWLEDGMENT

For the first time, the preventive effect and clinical features of the inflammatory process in soft tissues during the use of antibiotics are described. On the basis of experimental and clinical studies, the advantage of lymphotropic antibiotic therapy among other methods of administration of antibiotics has been shown.

The analysis of the tactics and volume of surgical intervention was carried out in case of



mass admission of victims with gunshot wounds. The peculiarities of these wounds were revealed, and the tactics of their treatment were assessed. With the massive admission of wounded in an emergency, the actions of a surgeon, traumatologist, and microsurgeon have been developed for gunshot wounds of the extremities. Taking into account the peculiarities of gunshot wounds, modern pathogenetically substantiated methods of regional lymphotropic treatment were used for the first time. The principles of providing EMF in case of mass admission of wounded at the stages of evacuation in the RSCEMP system have been developed.

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Abstract

Stomach cancer, a disease characterized by abnormal growth of cells in the stomach. The incidence of stomach cancer has decreased dramatically since the early 20th century in countries where refrigeration has replaced other methods of food preservation such as salting, smoking, and pickling. Stomach cancer rates remain high in countries where these processes are still used extensively. Worldwide it was the fifth most-common cancer in the 21st century.

Keywords: stomach, tissue, cancer, helicobacter pylori.

Introduction

Ninety-five percent of malignant stomach cancers develop from epithelial cells lining the stomach. These tumours are called adenocarcinomas. Other stomach cancers can develop from the surrounding immune cells, hormone-producing cells, or connective tissue.

Multiple risk factors have been identified that increase a person's probability of developing stomach cancer. These include a diet high in salted, smoked, or pickled foods, tobacco and alcohol use, obesity, or a family history of stomach cancer. Infection by the bacterium *Helicobacter pylori*, which can cause significant damage to gastric tissues and is a cause of peptic ulcers, can also lead to stomach cancer. Other factors that may increase the risk of stomach cancer to varying degrees are previous stomach surgery, blood type A, advanced age (60–70 years), or chronic stomach inflammation. Males develop stomach cancer at approximately twice the rate of females. Rare disorders such as pernicious anemia, Menetrier disease, or common variable immunodeficiency and congenital disorders that lead to increased risk for colorectal cancer may also increase stomach cancer risk.

The symptoms of stomach cancer are prevalent in many other illnesses and may include abdominal pain or discomfort, unexplained weight loss, vomiting, poor digestion, or visible swelling in the abdomen.

Diagnosis, staging, and survival

No specific laboratory test for stomach cancer exists, and the disease is therefore usually diagnosed through a combination of visual means. A physician can inspect the lining of the stomach with a flexible, lens-containing tube called an endoscope. The endoscope can also be used to take samples from potentially cancerous tissues for biopsy. These samples are examined under a microscope for signs of cancer. An endoscope may also be modified with a special probe that emits sound waves in the stomach, which allows the physician to create



an image of the stomach wall. X-rays are also employed, usually after the patient has swallowed a barium compound that coats the stomach and provides better image contrast. Other imaging techniques such as computed tomography (CT) scans and magnetic resonance imaging (MRI) are also used, especially when the cancer is believed to have spread. A breath test to detect specific chemicals present only in the breath of persons with stomach cancer has shown promise in trials in human patients. If implemented clinically, it could aid early disease detection and streamline the effectiveness of diagnostic imaging for stomach cancer.

Once stomach cancer has been diagnosed, its stage is determined. The stage is an indicator of how far the cancer has progressed. Staging for stomach cancer is complicated and is based on a combination of how far the cancer has grown through the stomach wall and on the number of lymph nodes affected, if any. Stage 0 stomach cancer is also called carcinoma in situ and is confined to the epithelial cells that line the stomach. Stage I and II stomach cancers are characterized by the spread of cancer through the innermost layer (mucosa) of the stomach wall, with involvement of as many as 6 lymph nodes in stage IB and 7 to 15 lymph nodes in stage II, or spread to the muscular layer (muscularis), with involvement of up to 6 lymph nodes in stage II. Other stage II stomach cancers may be characterized by spread to the outermost layer (serosa) of the stomach wall. Stage III and IV cancers are more advanced and may have metastasized to distant tissues.

A very high percentage of individuals survive stomach cancer for at least five years if the cancer is diagnosed very early, and many of them go on to live long, healthy lives. Unfortunately, only a small percentage of stomach cancers are identified and treated at such an early stage; the overall five-year survival rate for stomach cancer is about 20 to 28 percent. The survival rate for cancers of the lower stomach is higher than that for cancers of the upper stomach; if the cancer has spread to distant tissues in the body, the survival rate is extremely low.

Treatment

Surgery is the only method available for curing stomach cancer, although radiation or chemotherapy may be used in conjunction with surgery or to relieve symptoms. If the cancer is localized, the cancerous portions of the stomach are removed in a procedure called a partial gastrectomy. In some cases, the entire stomach must be removed along with the spleen and nearby lymph nodes. Repair of the stomach generally requires permanent changes in dietary habits and may demand intravenous administration of vitamin supplements. If a cancer cannot be cured, surgery may still be used to relieve symptoms or digestive discomfort. Radiation therapy is sometimes used in conjunction with surgery to destroy any remaining cancer cells. When stomach cancer has spread to distant organs, chemotherapy may be required so that as many cancer cells as possible can be sought out and destroyed. Both radiation therapy and chemotherapy may produce several side effects such as vomiting and diarrhea.



Prevention

Because the causes of stomach cancer are not fully understood, and because some risk factors (e.g., genetic predisposition) cannot be controlled, the disease cannot be completely prevented. However, people can decrease their risk of disease by adopting a diet that is low in salted, smoked, and pickled foods and high in fruits and vegetables. Elimination of tobacco use and reduction in alcohol consumption also help lower risk. Research has indicated that prompt treatment of *H. pylori* infection can reverse gastric tissue damage, thereby reducing stomach cancer risk.

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**OBTAINED IN CATTLE POISONING VETERINARY SANITARY
EXAMINATION OF PRODUCTS**

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Abstract

this article describes the interpretation of the literature on the poisoning of cattle with pesticides, chloroorganic compounds with strongly acting substances, the elimination of products from infected animals from veterinary sanitary equipment.

Keywords: pesticides, chloroorganic compounds, phosphamide, utifos, chlorophos gastrointestinal tract, epicardium, endocardium, liver, kidney.

Introduction

The supply of quality meat and dairy products to the population of our republic, as well as the enrichment of dexqan markets with food products safe for public health, is an urgent task of today.

Today, the demand for meat and meat products in our country has never decreased, increasing day by day. In this regard, it is considered an important task to study the characteristics of poisoning of cattle with most pesticides, chloroorganic compounds and to provide quality meat to the population, improving the methods of Veterinary sanitary examination of products from poisoned animals. In practice, cases of poisoning of agricultural animals with various toxic substances are observed. Poisoning can occur when agricultural animals want nitrogen, potassium, phosphorus and other fertilizers, violation of the rules for storage, storage and use.

The cause of poisoning can be mineral poisons, which in different ways fall into feed and water. The animal can be poisoned with phosphoric pesticides (e.g. phosphamide, butifos, chlorophos, etc. Chlorogenic pesticides can cause animal poisoning when used to protect plants from pests, to combat cattle Endo-Ecto parasites, and to detoxify livestock buildings and manure deposits. The nature of poisoning is important for veterinary sanitary



examination and sanitary assessment of meat and other slaughter products of poisoned animals. Depending on the toxicity of the substance, dosage and frequency of entry into the body, poisoning in animals can have an acute manifestation and a chronic course. In cases of meat and animal poisoning, sanitary assessment is distinguished. At the same time, in addition to the data of chemical-toxicological analysis, the results of organoleptic, biochemical and bacteriological studies are taken into account, the toxicity of the substance, which leads to its poisoning, and the ability to accumulate and accumulate in various tissues of the body. Meat and meat products of animals poisoned and forcibly killed food in all cases it is found unsuitable for consumption. Currently, most pesticides, chloroorganic compounds are strongly affected.

It is among the substances that make up. For this reason, the partial presence of them in meat products of poisoned animals also disrupts the human body from the state of cattle, and some systems are affected toxic.

Chlorogenic and Mercury preparations containing meat can accumulate for a long time without losing their strength of action, and then affect. In addition these periparts remain in the meat without changing their composition even when they are stored in the meat for a long time, as well as when the meat is produced in high and low temperature.

Such meat and meat products, when consumed, have a toxic effect on the internal and external secretion glands and embryo in the body.

One aspect of poisoning is that the resistance of the body decreases in this. As a result of the decrease in the reticuloendothelial barrier of the intestines of animals from the action of the poison, conditions are created for the spread of microflora inside the intestine throughout the body and the possibility of spreading secondary pathogenic microbes into the body. Eating meat of such animals leads to the appearance of intestinal infections in humans, the most dangerous of which is the development of toxicoinfection as a result of salmonellosis. Therefore, when slaughtering poisoned animals, it is necessary to rely on what and how it is poisoned, and it is advisable to carry out a sanitary inspection of meat products to know exactly the Ph indicator of the meat and accurately calculate what the degree of poisoning is and its dosage if the meat is poisoned, if it is suitable for cleaning measures In acute poisoning, catarrhal inflammation of the mucous membranes of the gastrointestinal tract, parenchymatous organs are filled with blood, the bronchi and bronchi are filled with foam, pulmonary tissue is swollen, blood clots are observed on the mucous membranes of the respiratory system. Also in the epicardium, endocardium, liver and kidneys blood clots are anicized. Ruminants gas in the big belly accumulates. In chronic poisoning, blood filling and fatty dystrophy are observed in the abdominal organs and lungs. The liver is full of blood, enlarged in size. Necrotic foci are observed in the heart muscle and liver. It is determined that the brain tissue is swollen, in some cases it is observed in blood clots.

CONCLUSIONS

1. In providing the population of our country with environmentally friendly products, it is dangerous for the health of people to go out of consumption without first checking the meat and meat products obtained from animals.



2. The main cause of poisoning of agricultural animals is pesticides, chloroorganic compounds strongly acting substances occur when other fertilizers are unwanted by animals, in violation of the rules for their storage, storage and use.

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**IMPORTANCE OF ISLAMIC STOCK INDICES FOR THE COUNTRY'S
FINANCIAL MARKET**

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PhD International Islamic Academy of Uzbekistan,
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This research delves into the paramount significance of Islamic fund indices as instruments for harmonizing investments with Sharia principles. With their provision of a comprehensive array of investment avenues adhering to ethical standards, these indices play a pivotal role in propelling the growth and dynamism of the Islamic capital market. Against the backdrop of an evolving global financial milieu, these indices assume an increasingly pivotal role, transcending their financial function to exert a compelling influence on the ethical comportment of corporations. This study underscores the critical import of these indices in effecting the seamless integration of deeply ingrained beliefs and contemporary investment paradigms, thereby engendering a just, equitable, and prosperous financial ecosystem for both Islamic and non-Islamic stakeholders.

Keywords: Islamic finance, stock indices, Sharia principles, ethical investments, global financial landscape, growth, integration, equity, prosperity.

Introduction

Stock indices, commonly referred to as stock market indices, serve as numerical metrics designed to meticulously monitor and evaluate the performance of a distinct cohort of publicly traded corporations or a designated segment within the stock market ecosystem. These indices assume the pivotal role of functioning as vital indicators, offering insights into the comprehensive well-being and operational prowess of either the broader stock market or a specific sector therein. Their multifaceted utility as indispensable instruments extends to guiding investors, financial analysts, and policymakers in comprehending the intricate dynamics of market movements, engendering informed investment judgments, and meticulously assessing the intricate tapestry of prevailing economic tendencies.

The foundational methodology encompassing stock index computation typically involves a weighted average amalgamation of either stock prices or market capitalization pertaining to the encompassed constituent companies. The intricacies of this computational framework, however, display variations contingent upon the index provider's methodology and the specific index that is being meticulously tracked. Within the realm of stock market indices,



a plethora of widely recognized examples emerges, including but not limited to the illustrious S&P 500, the venerable Dow Jones Industrial Average (DJIA), the technologically-oriented NASDAQ Composite, the esteemed FTSE 100, and the iconic DAX 30, among an expansive array of others.

Here are some common types of stock indices:

1. **Broad Market Indices:** These indices track the overall performance of a wide range of stocks across various industries. They provide a broad representation of the overall market's performance and are commonly used as benchmarks for comparing investment returns.
2. **Sector Indices:** Sector indices focus on specific industries or sectors within the economy, such as technology, finance, healthcare, or energy. They help investors assess the performance of individual sectors and make sector-specific investment decisions.
3. **Regional or Country Indices:** These indices track the performance of stocks from a specific country or region. For example, the FTSE 100 represents the largest companies listed on the London Stock Exchange, while the Nikkei 225 tracks the performance of top Japanese companies.
4. **Global Indices:** Global indices provide a broader perspective by tracking stocks from multiple countries or regions. They are designed to measure the performance of the global equity markets.
5. **Market Capitalization-Weighted Indices:** These indices give more weight to larger companies based on their market capitalization. Examples include the S&P 500 and the NASDAQ Composite.
6. **Price-Weighted Indices:** In price-weighted indices, stocks with higher prices have more significant influence on the index value. The DJIA is a well-known price-weighted index.

Stock indices serve several purposes in the financial markets, including:

- Providing benchmarks for investment performance evaluation.
- Facilitating the creation of index funds and exchange-traded funds (ETFs).
- Assisting in tracking the overall market sentiment and economic trends.
- Offering a reference point for asset allocation decisions.
- Helping policymakers and economists analyze market and economic conditions.

In the realm of the financial landscape, stock indices assume a pivotal and indispensable role, serving as paramount tools that intricately aid investors in comprehending and navigating the intricate tapestry of market movements, thereby enabling the formulation of astute and informed investment strategies. The significance of these indices transcends mere numerical measurements, as they wield the power to offer profound insights into the underlying dynamics of market fluctuations and trends, thus facilitating the augmentation of investor understanding and facilitating well-informed decision-making in the multifaceted arena of financial investments.



Literature Review

Nafis Alam and colleagues report that Islamic sectoral indices generally tend to exhibit a higher efficiency regime across the last decade[1]. Islamic index seems to have stayed attractive and resilient, allowing conformity with the weak form efficient market hypothesis. Study attempts to pioneer in this niche area by conducting a comparative analysis of 10 sectoral global indices for both conventional and Islamic counterpart spanning over 18 years. The analysis reveals that in the shorter horizon, efficiency tends to follow a similar pattern. In ‘Common shocks, common transmission mechanisms and time-varying connectedness among Dow Jones Islamic stock market indices and global risk factors’, a group at the University of Sfax led by Hedi Haddad reported that this study examines the spillover between the US yield curve components and return and volatility spillovers of ten Islamic equity sectoral indices [2]. The aim is to investigate the existence of volatility spillover effects between foreign exchange markets and Islamic stock markets in three major emerging countries. Since the 2007–2009 GFC, there has been renewed interest in Islamic finance as an alternative financial system for stability and economic growth. The researchers investigate the existence of short- and long-run co-movements of the seven Dow Jones Islamic market indices for the period from 4/14/2003 to 11/28/2018. The results indicate that the seven DJIM share five common trends and six common cycles.

Some of the authors’ findings may support previous studies in this field: “From our findings, we suggest that the nature of volatility spillovers across and within Islamic and/or G7 markets is time-varying and frequency-dependent. This is consistent with the HMH of Müller et al, the AMH of Lo and the CMH of Owusu Junior,” Haddad claimed.

Afees Shaik described Islamic Stock indices and COVID-19 pandemic [3]. Motivated by the COVID-19 pandemic, they construct a single factor predictive model for stock returns that incorporates uncertainty index for pandemics and epidemics. Shaik find that the Islamic stocks can be used to hedge whereas the conventional stocks are seen to be vulnerable.

In ‘Dynamic inflation hedging performance and downside risk’, a group led by Refk Selmi at the Toulouse Business School noted that inflation has attained the highest level in decades, with the Russian/Ukrainian war adding upward pressure on prices of energy and food [4]. In a high-inflation environment where investors face inflationary pressures, it becomes increasingly important to diversify portfolios towards assets with potential inflation hedging abilities. Islamic stock indices exhibit the best hedging properties under their bull states, extreme inflation episodes and for an investor willing just to protect against inflation.

A research team led by Muhammad Akbar from the Birmingham City University described adaptive market hypothesis [5]. Islamic finance has received increasing attention and experienced significant growth over the last two decades. This paper examines the consequences of complementarity between tradable and nontradable goods for exchange rates and monetary policy in a two-country general equilibrium model. It revisits well-known findings in the New Open Economy Macroeconomics literature that optimal monetary policies respond only to domestic shocks. Investment in stocks that conform to Shariah principles has been on the rise across global financial markets. The group aim to



investigate the optimal degree of interagency coordination of subsidy and tariff policies. The data set only includes trading activities conducted on centralized exchanges.

However, “The increase in cryptocurrencies trading in times of crises can be motivated by different explanations which are difficult to disentangle. A more specific analysis concerning the EU sanctions established in 2022 on Russia shows that crypto trading slows down when crypto-related services are explicitly included in EU financial sanctions packages,” say the researchers. There are various researches around this topic [6], [7], [8], [9].

Analysis and Discussion

Islamic stock indices, commonly referred to as Shariah-compliant stock indices, represent a specialized category of financial benchmarks meticulously engineered to monitor and assess the performance of stocks emanating from enterprises that diligently adhere to the principles and precepts inherent in Islamic tenets and ethical guidelines. This unique breed of indices is intrinsically designed to cater to the discerning requisites of Islamic investors, who ardently seek investment avenues that seamlessly align with their religious convictions and steer clear of engagements in business activities that transgress the boundaries delineated by Islamic tenets.

The construction of Islamic stock indices involves a rigorous screening process to ensure that the constituent companies adhere to Shariah principles. The screening criteria typically include:

Business Activities: Companies involved in prohibited industries, such as alcohol, gambling, pork-related products, conventional banking and finance (with interest-based transactions), and other non-compliant activities, are excluded from the index.

Debt Levels: Companies with excessive debt ratios or those involved in interest-based borrowing are generally avoided.

Financial Ratios: The financial ratios of the companies are analyzed to ensure they meet specific Islamic finance requirements.

Interest Income: Companies that derive significant income from interest or non-compliant financial activities are excluded.

Purification of Income: Companies with non-compliant income sources can undergo a purification process, where a portion of their income is donated to charitable causes.

Islamic stock indices are commonly used as benchmarks for Shariah-compliant investment funds and financial products. They provide a reference point for investors looking to assess the performance of their investments in line with Islamic principles.

Some well-known Islamic stock indices include:

- **Dow Jones Islamic Market Index (DJIM):** This index is a family of Islamic indices provided by S&P Dow Jones Indices. It includes regional and country-specific indices, such as the Dow Jones Islamic Market World Index and the Dow Jones Islamic Market Malaysia Index.



- **FTSE Shariah Global Equity Index Series:** Offered by FTSE Russell, this series includes various indices covering global markets that meet the criteria for Shariah compliance.
- **S&P Shariah Indices:** Provided by S&P Dow Jones Indices, these indices cover various regions and countries, including the S&P Shariah 500 Index.
- **MSCI Islamic Indices:** Offered by MSCI, this series includes regional and country-specific indices, such as the MSCI ACWI Islamic Index.

The substantive significance of Islamic stock indices resides in their pivotal function of propagating and advancing the domain of Islamic finance, thereby rendering the stock market an appealing arena for Islamic investors. This niche category of indices, renowned as veritable bastions of Shariah compliance, undertakes the momentous task of furnishing an expansive assemblage of investment avenues that align seamlessly with the precepts embedded within the Islamic framework. In doing so, they engender a catalytic impact upon the global expanse of the Islamic capital market, contributing substantively to its multifaceted growth and progressive evolution.

In essence, the intricate tapestry of Islamic stock indices effectively operates as a conduit through which Islamic investors are empowered to realize a confluence between their financial objectives and their deeply ingrained ethical and religious convictions. This symbiotic alignment, in turn, engenders an ecosystem characterized by investment practices that are both responsible and sustainable, thereby embodying the very ethos of principled investment comportment. The overarching significance of Islamic stock indices thus transcends the confines of a mere financial tool, assuming a profound role in nurturing investment practices that are not only aligned with the tenets of Islamic faith but are also informed by conscientious considerations of long-term societal and environmental welfare.

Dow Jones Islamic Market Index (DJIM): This index is presented by S&P Dow Jones Indices as part of the family of Islamic indices. It encompasses regional and country indices like the global Dow Jones Islamic Market Index and the Dow Jones Islamic Market Index for Malaysia. DJIM is calculated based on the weighted average of Dow Jones Islamic indices from various countries (regions). This index has been calculated since May 24, 1999.

Table 1. Composition of DJIM Index by country (as of July 31, 2023)

No	Country (region)	Number of constituents	Total market capitalization (USD billion)	Index weight (%)
1.	USA	561	31 303,33	68,9
2.	Japan	308	2 139,01	4,2
3.	Switzerland	49	1 552,69	3,2
4.	China	999	5 050,31	3,2
5.	Great Britain	67	1 157,31	2,5
6.	Canada	74	973,95	2
7.	France	27	1 312,63	2
8.	India	258	1 871,24	1,8
9.	Taiwan	253	1 044,02	1,7
10.	Australia	71	697,59	1,5
11.	South Korea	306	960,93	1,4



12.	Netherlands	13	651,14	1,3
13.	Germany	42	642,81	1
14.	Denmark	20	498,33	1
15.	Sweden	43	387,13	0,7
16.	Saudi Arabia	87	2 683,28	0,6
17.	Italy	18	229,89	0,3
18.	Finland	12	133,22	0,3
19.	Brazil	33	187,70	0,2
20.	Others (37 countries)	520	2 067,72	2,2

As of the designated date of July 31, 2023, a comprehensive examination of the DJIM index reveals a meticulously curated assemblage of no less than 3761 individual constituents, the intricate delineation of which is thoughtfully encapsulated within Table 1. A noteworthy facet that emerges upon scrutinizing this index lies in the composition of its foremost echelon, wherein the upper echelon is chiefly dominated by a select cohort of the top 10 constituents. This notable subset of the index, by virtue of its encompassing essence, commands a substantial proportion of the entire index value, with an appreciable quantum amounting to 26.7% attributably apportioned therein.

Further accentuating the computational facet underpinning the index valuation is the meticulous alignment of user-generated activities with a vast array of distinct nations spanning the global spectrum, aptly attesting to the far-reaching and inclusive nature of the index's foundation. In essence, these user activities, meticulously channelized through a rigorous matching process, exhibit a comprehensive engagement that spans no less than 56 countries, thereby underscoring the encompassing global orientation inherent within the framework. Predominantly emanating from the prolific domain of stocks enlisted on American exchanges, this array of user-engendered contributions consequently assumes a vanguard role in substantively enriching the cumulative value embodied within the index's ambit. This discernible dominance, emanating chiefly from the United States-listed stocks, substantively commands a substantial proportion accounting for 68.9% of the holistic composite index value, thereby concretizing its preeminent stature within the overarching construct.



Figure 1. Dynamic of DJIM Index [10].



Within the context of comprehending the underlying trajectory of the DJIM index, which serves as a discerning barometer of growth dynamics across historical epochs, an imperative facet meriting consideration lies in the acknowledgment of distinct temporal junctures that bore witness to notable contractions, as visually illustrated in Figure 1. A pivotal illustration of such instances is discerned during the unfolding of the COVID-19 pandemic in the year 2020, which engendered a profound impact upon the value of the DJIM index. This substantial decline, elucidated by empirical evidence, is attributed to a confluence of factors encompassing the untimely announcement heralding the pandemic, the pronounced lag in the calibration of the economic infrastructure, and the lack of foresight pertaining to the impending trajectory of the pandemic situation.

Emanating from the realms of this pivotal juncture, a resounding resonance is discernible across varied typologies of indices, transcending geographical boundaries to encapsulate the global expanse. During this phase, characterized by a universal downtrend, indices of disparate categories experienced palpable retractions, illustrating a confluence that reverberated throughout the expanse of diverse financial landscapes. However, indicative of the intrinsic resilience inherent within economic systems, the multifaceted course of the economy gradually navigated a trajectory of convalescence, a trajectory that was marked by a succinct duration. In alignment with this resurgence, the economy managed to reclaim and reconstitute its pre-pandemic positioning, thereby underscoring the adaptive resilience that is emblematic of the overarching economic fabric.

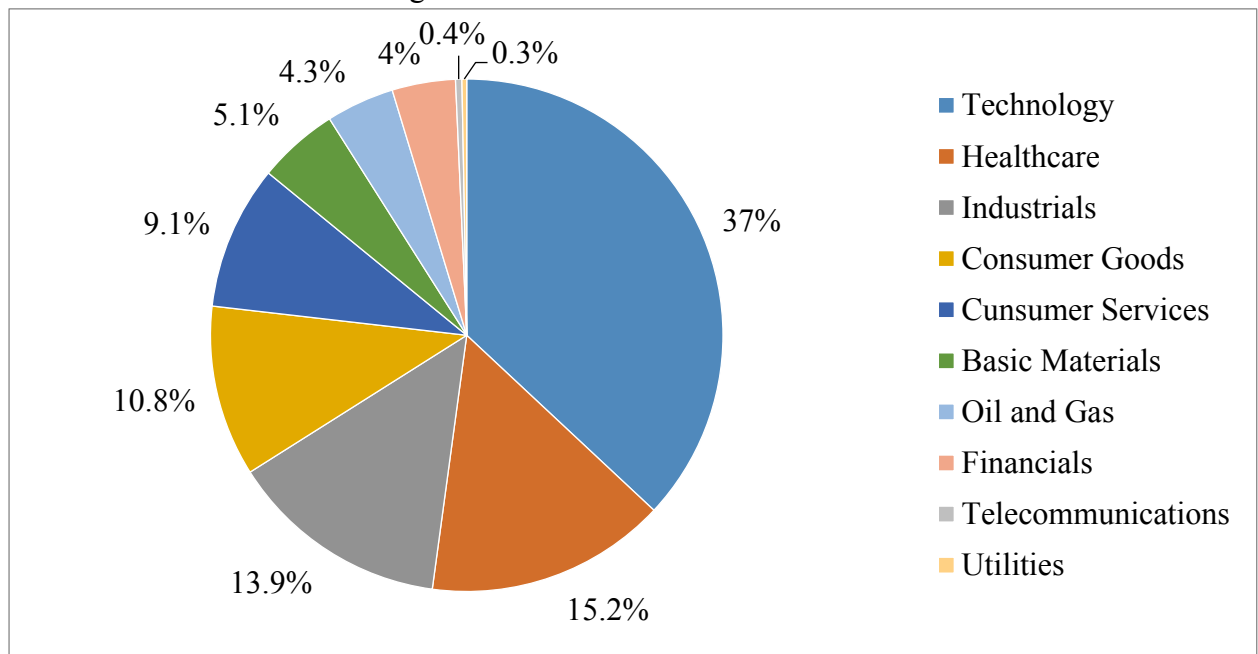


Figure 2. Composition of DJIM Index by Sector [11].

Upon meticulous scrutiny of the sectoral breakdown of the DJIM index, a conspicuous and noteworthy pattern emerges, revealing a distinct prevalence of high-tech companies that exert a substantial influence. This pronounced eminence of high-tech companies contributes significantly, encompassing 37% of the index's overall composition, as visually depicted in Figure 2. Among these influential entities, notable industry giants such as Apple, Microsoft, Nvidia, Alphabet, and Meta hold a commanding presence. Subsequent to this, the analysis



reveals an additional noteworthy facet within the realm of sectoral representation, with a remarkable fortitude observable within the health preservation sector, signifying a proportion of 15.2%, and the industrial sector, reflecting a robust proportion of 13.9%, both contributing to the comprehensive structure of the index.



Figure 3. FTSE Shariah All World index dynamics [12].

The "FTSE Shariah All World" index, introduced by Yasaar Ltd, stands as a comprehensive compilation of various indices meticulously designed to encapsulate the global markets that strictly adhere to the tenets of Sharia principles. The inception of the FTSWORLDS index occurred on the 29th of October, 2007, encompassing a diverse array of 2099 instruments, as meticulously outlined in Table 2. As of the 31st of July, 2023, a discerning examination of its composition reveals that the upper echelon of the index is significantly constituted by the top 10 enterprises, collectively accounting for an impressive 30.5% of the cumulative index value. Moreover, it is noteworthy that the process of calculating the index value aptly correlates user activities with 46 distinct countries, wherein the substantial contribution predominantly emanates from US-listed stocks, effectively magnifying their influence within the index. This pivotal factor culminates in an approximate representation of nearly 60% of the total index value.

In parallel to the trajectory observed across various Islamic fund indices, the FTSE Shariah All World index illustrates an enduring inclination towards long-term growth, counterbalanced by an abrupt downturn during the commencement of the COVID-19 pandemic, vividly demonstrated in Figure 3. Delving further into the index's evolution, it becomes apparent that the ascendancy of technology-oriented companies remains steadfast, adhering to Sharia principles and maintaining an elevated stature, as substantiated by the trends elucidated in Figure 4. Concurrently, in tandem with these dominant technology entities, the health preservation sector, closely followed by the sphere of industrial products and services, along with the broader realm of consumer products and services, collectively contribute their pivotal shares to the index, securing proportions of 15.9%, 15.7%, and 13.7%, respectively.

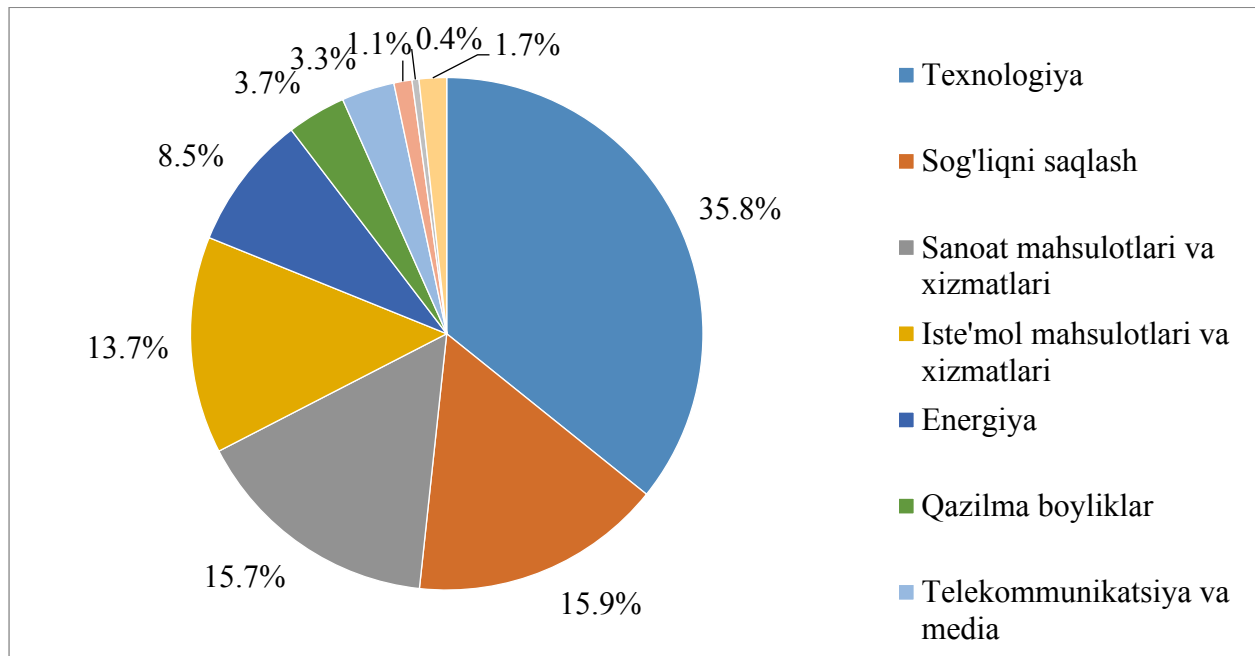


Figure 4. Composition of FTSE Shariah All World Index by Sector [13]

Table 2. Composition of the FTSE Shariah All World Index by countries (as of July 31, 2023)

No	Country (region)	Number of constituents	Total market capitalization (USD billion)	Index weight (%)
1.	USA	219	19 683,81	59,93
2.	Japan	284	2 039,03	6,21
3.	Great Britain	59	1 431,51	4,36
4.	France	33	1 068,40	3,25
5.	Switzerland	35	887,85	2,70
6.	Germany	49	850,90	2,59
7.	Taiwan	65	793,91	2,42
8.	Australia	63	712,24	2,17
9.	South Korea	80	677,47	2,06
10.	China	580	590,85	1,80
11.	India	108	547,61	1,67
12.	Canada	14	471,35	1,44
13.	Netherlands	13	436,63	1,33
14.	Denmark	11	369,18	1,12
15.	Sweden	33	324,39	0,99
16.	Saudi Arabia	49	238,55	0,73
17.	Brazil	40	232,59	0,71
18.	Spain	12	232,03	0,71
19.	Italy	15	171,29	0,52
20.	Others (27 countries)	337	1 084,37	3,29

Upon meticulous examination of the compiled data presented in both Table 1 and Table 2, a conspicuous trend emerges, elucidating that the trading of Sharia-compliant stocks significantly garners momentum within countries boasting well-entrenched economic



advancement and a heightened level of developmental maturity, in stark contrast to countries wherein the Muslim population is comparatively lower. This discernible contrast can be comprehensively explicated through the interplay of a multitude of interrelated factors that intricately shape this phenomenon:

Primarily, it is evident that well-developed nations invariably harbor an advanced financial infrastructure, encompassing the robust presence of rigorously organized stock exchanges, comprehensive regulatory frameworks, and an array of meticulously established financial institutions. This extensive financial ecosystem collectively fosters an environment ripe for the meticulous conception and operationalization of specialized indices tailored to adhere to the tenets of Islamic finance, exemplified by the distinct realm of Islamic fund indices.

Furthermore, it is imperative to underscore that developed countries inherently boast a substantial and diversified investor base, distinctly characterized by a pronounced proliferation of Islamic securities. In these sophisticated economic landscapes, investors exhibit a predilection for Islamic assets, regarding them as a novel avenue through which they can effectively diversify their investment portfolios, thereby capitalizing on the potential advantages derived from a judiciously diversified investment strategy.

Moreover, it is an incontrovertible reality that several well-established nations, including formidable entities such as the United Kingdom, the United States, and Japan, stand as prominent financial bastions on the global stage. In a concerted bid to fortify their prominence in the realm of international finance, these nations endeavor to design and proffer pioneering Islamic financial products, prominently featuring Islamic fund indices. This strategic endeavor serves a dual purpose: firstly, it accentuates the allure of these countries as a haven for international investors seeking to engage with Sharia-compliant financial instruments, and secondly, it bolsters the nation's strategic foothold within the global financial landscape.

In summation, the discernible inclination for the conspicuous trading of Sharia-compliant stocks within well-developed countries resonates as a resounding testament to the intricate confluence of factors characterizing these advanced economies. The robust financial infrastructure, the presence of a diversified investor base, and the concerted efforts towards innovation and internationalization in Islamic finance collectively encapsulate the nuanced dynamics that delineate this fascinating trend in the realm of Islamic fund indices and Sharia-compliant trading.

The escalating trajectory of ethical and socially responsible investments traverses the global landscape with unwavering momentum. A noteworthy confluence arises between the fundamental tenets of Islamic finance and the overarching ideals governing ethical investments, thus conferring a magnetic appeal upon Islamic fund indices that resonates far beyond the confines of Muslim investors.

Within jurisdictions harboring a substantial Muslim populace, the labyrinthine complexities stemming from legal and regulatory considerations occasionally cast a shadow upon the seamless introduction and widespread promotion of Islamic financial products. This intricate tapestry of challenges is underpinned by a diverse array of factors that intricately interplay to engender regulatory constraints. In contrast, nations fortified by well-established



legal frameworks may find the path to embracing and meticulously governing Islamic financial instruments notably smoother, owing to the robust scaffolding upon which their regulatory paradigms are founded.

Enriched by an illustrious historical lineage entrenched within the realm of capital markets, developed countries stand as veritable custodians of extensive experiential wisdom. While Islamic fund indices may diverge from their conventional counterparts across certain nuanced contours, the landscape is such that adept market participants can adroitly usher in novel financial instruments without unduly encountering intractable impediments.

At this juncture, it is paramount to underscore that the evolutionary trajectory of the Islamic capital market is inexorably entwined with the broader developmental tapestry that envelops the general market milieu. The interdependence between the flourishing Islamic capital market and the overarching developmental pulse resonating across the wider financial spectrum is an undeniable testament to the intricate symbiosis prevailing within this multifaceted ecosystem.

The landscape of financial indices is enriched by the presence of the S&P Shariah Indices, meticulously curated and presented by the esteemed entity of S&P Dow Jones Indices. These indices radiate across diverse geographical expanse, encompassing a tapestry of regions and nations that reverberate with Islamic ethos. A cornerstone within this array is the prominent S&P Shariah 500 index, emblematic of the Sharia-compliant investment trajectory.

In a parallel realm, the MSCI Islamic Indices, a comprehensive series curated under the aegis of MSCI, unfurl an intricate web of regional and country-specific indices, prominently featuring the MSCI ACWI Islamic index, emblematic of the broader aspiration to align investment principles with Islamic tenets.

Embodied within the realm of Islamic finance, fund indices emanate as formidable agents, intricately orchestrating the convergence of Islamic capital and astute investors within the dynamic milieu of the fund market. Their significance resonates in their ability to conjure a diverse array of investment avenues meticulously tailored to be in unison with the tenets of Sharia principles. This resonance echoes forth to reverberate within the realms of the global Islamic capital market, serving as a catalyst for its unfettered growth and elevation. This transformative effect extends further, affording investors the cherished privilege of harmonizing their financial aspirations with the contours of their ethical and religious convictions. This synoptic alignment, characterized by a harmonious confluence of fiduciary goals and spiritual beliefs, yields a fertile ground for investments rooted in prudence and longevity.

The evolution of Islamic fund indices has orchestrated their metamorphosis into potent ethical instruments, assuming the venerated role of intermediaries traversing the spectrum between Sharia principles and the complex labyrinthine tapestry of modern financial markets. This symbiotic interaction liberates investors from the dichotomy between faith and finance, providing them the vantage to partake in the enigmatic dance of the fund market while remaining steadfast to their sacred values.

At the fulcrum of this transformative journey lies the screening process, meticulously scrutinizing the fabric of Sharia compliance and discerning its intertwining with modern



financial markets. This screening is not confined to the linear assessment of financial metrics; rather, it is an intricate tapestry woven with the threads of ethical investments, a profound evaluation of corporate activities consonant with ethical alignment, and a discerning appraisal of debt thresholds. This multi-dimensional scrutiny adds layers of resilience, fortifying the foundation of Islamic fund indices and safeguarding their intrinsic fidelity to the bedrock of Sharia principles.

Conclusion

Islamic fund indices assume a pivotal stance within the multifaceted tapestry of the financial arena, illuminating a distinctive path for investors to traverse in assessing the efficacy of their investment endeavors congruent with the intricate contours of Sharia principles. Concurrently, these indices unfurl an expansive array of investment conduits meticulously crafted to resonate with the tenets of Sharia, thereby catalyzing a cascading impact on the evolution and expansion of the dynamic milieu known as the Islamic capital market.

In the context of the ever-evolving panorama of the global financial landscape, the salience of Islamic fund indices is poised to extend its gravitational pull, its resonance growing in tandem with the evolving intricacies of the financial realm. This gravitational pull is not confined within the confines of financial markets alone; its sphere of influence extends to corporate comportment, invoking a transformational impact upon ethical paradigms by wielding the potent influence of Sharia principles to orchestrate a realignment of business conduct.

In its very essence, Islamic fund indices epitomize an elegant synergy, an artful integration between the tapestry of beliefs and the intricate weave of finance. They not only exemplify the congruence and resilience of Islamic principles in harmonious coexistence with contemporary investment modalities but also mirror a testament to their practical viability. In the contemporary context where the momentum of ethical investments gains ever-more traction and the onus on responsible financial practices gains pronounced prominence, the role and import of Islamic fund indices burgeon in parallel. Their ascendancy bears witness to a profound enrichment of the intricate fabric of the global financial ecosystem, infusing it with a resolute dose of robustness and an inherent sense of equity.

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**INTERACTIVE APPROACH TO THE STUDENT'S MENTAL ACTIVITY
THROUGH COLORS**

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Abstract

This article talks about influencing students' cognitive skills through various interactive techniques and the practical introduction of techniques that can be applied to lesson processes from colors available in nature.

Keywords: educational system, mental activity, innovative approach, interactive method, color effect.

Introduction

At the moment, we all see how competition on a global scale is becoming tense. We can adequately respond to fierce competition only by the widespread introduction of the achievements of modern science, high technology and innovation.¹

In our republic, every branch of the educational system is constantly in the attention of the state. Over the past period, complex organizational and legal measures have been implemented to organize an effective educational system aimed at ensuring the formation of a healthy and comprehensively developed generation.

The use of interactive techniques in involving students in lesson processes is gaining popularity today, it is through these types of methods that the effectiveness of the lesson is increased in the formation of students' knowledge and skills. We will consider the effect of using colors when applying such methods.

First of all, let's consider the effect of colors on brain activity. "Colors follow changes in emotions, like features," said artist Pablo Picasso.

Color-it serves as a powerful means of communication. It can be used to influence a person, change his mental state, even to react physiologically.²

¹ . Sh.M.Mirziyoyev "New Uzbekistan development strategy". "Uzbekistan", Tashkent-2022

² https://kompy.info/ranglarning_miyaga_ta'siri.



Through each color, it is possible to influence the mental activity of children. In the experience of foreign countries, the color of the pen used by the teacher is also important. For example, today it has been found that the red-colored pens used by teachers to check the exercises performed by children or their mistakes negatively affect the child's brain. The reason is that students have an understanding of red as a warning or a sign of danger. Today, scientists have found that green pens have a positive effect on students when examining their knowledge and skills. Green has a positive effect on the human psyche as a positive thought, creativity, creativity and a bright expression of nature. When examining mistakes of students, it was not the mistakes they made, but by marking the work that they had done correctly through green pens, it was shown that encouraging them would double the student's need for reading and learning. As long as we can influence the reader through the color of only one pen, there is no doubt that through all the colors that exist in nature, we can further develop their mental activity.

One of the games that attracts students to the lesson through colors is the game of colored balls.

Color ball game

In this game, balls of different colors will have to be brought from within the baskets by each student to name 10 objects of this color, and through this, students will be able to carefully look around, something the feature of being able to distinguish the colors of the



objects, develop their vision in the fire.

In the second condition of the game, readers are presented with pictures on unpainted paper, where the picture of various objects is dropped, and they paint through colored pencils how these objects will be colored. Through this two-step game, the students' hand matorics and its movements, focusing on colors, observing objects learn to attach importance to their properties as well, and the reader's attention is always attracted by bright objects, so that the result of exposure through colors is effective.



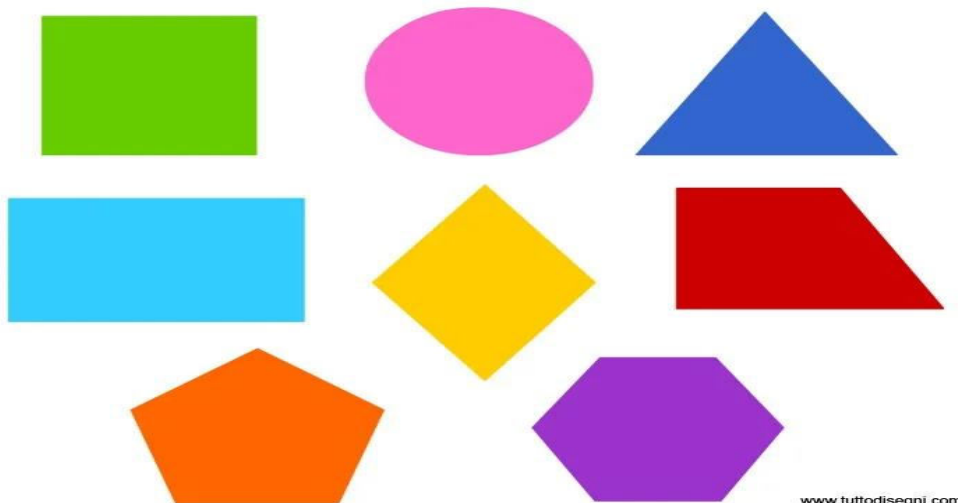
Find the unspoken color

In the process of teaching students forms in a math class, it is effective to use this method, which can also be used in other subjects. As we will see in the example of mathematics, we cut different shapes from different colors from colored cardboard and distribute them from all shapes to the parts in the form of a dispensing material and begin to apply the method to students in the form of a question.

Cards: will be red, yellow, green, purple, black, blue, white, brown, purple.

Find a small square shape that is neither red nor yellow nor looks like green.

Find a large triangle that is neither yellow nor blue, nor looks red.



Find a small circle shape that doesn't look like yellow, neither blue nor Green.

In this view, the teacher continues to ask questions. In addition to providing mathematical knowledge in children through this method, it helps them to become more intelligent, agile, improve their vision, sharpen their mental activity.

Catch the color

In this game, elementary students are warned that they should pay close attention to the words that will be the answer to what is interrogated in the classroom, and the teacher will tell students of the desired color, while students will have to catch objects in the room of this color, to awaken high moods in students, increase their elegance, distinguish who and what

Hold a yellow object.

Hold the object in green.

Find the object in red.

Hold the object in blue and so on.



The traditional tutoring method makes extensive use of techniques such as more lecture, question and answer practical exercise. Therefore, in most cases, students become passive participants in the educational process, and the effectiveness of the traditional lesson is much lower. In order to lead to an increase in the level of student assimilation, it is necessary to enrich it with methods that activate the activities of students of different districts, while maintaining the traditional lesson form based on the results of studies. It is becoming more customary to look at traditional teaching as a passive teaching method. However, in the lesson, the active or non-activity of students depends on the planning of the lesson and how to pass it. It is recommended to cut the new material into small pieces, increase the activity of students in the lesson and increase the effectiveness of the traditional lesson.³

When students are given a course process in a high mood, rich in interactive techniques, the effectiveness of the student's state of improvement in knowledge and skills can give the intended result. Today, young generations want to get a new idea from each lesson, and for this today's pedagogue should work tirelessly on himself.

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**TECHNICAL MEDIA**

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Abstract

This article discusses the analysis of Russian-language media. A huge role in preserving the norms of written speech is played by the media - television (to a lesser extent), the Internet, newspapers, magazines, books, and nowadays advertising has also joined in. For the mass reader, the media remain an example of the use of written language standards, however, spelling and stylistic errors are increasingly being made, which are especially dangerous in advertising, since they are learned by heart through repeated repetition.

Keywords: means, process, training, degree. norms, radio, newspaper.

Introduction

The generation of people who lived in strict compliance with the norms of the Russian language in the USSR does not tolerate mistakes and requires correction, however, young people are tolerant of mistakes, deliberately increasing their number, often completely neglecting punctuation, which impoverishes speech. And this becomes a problem that needs to be solved.

In general, Russian-language publications in the post-Soviet space position themselves as full-fledged media of the country of residence: they work for citizens of a given state, report what is happening in the country and in the world, but only in Russian.

Russian-language publications reflect the peculiarities of life in the state and are closely related to local social traditions and the national media environment. Throughout the CIS, the problems of imperfect social life are topical. In a number of Caucasian and Asian countries, the Russian-language press is dominated by the presentation of news “with an official sauce,” and embellishment flourishes. Some media are developing in the format of mass tabloids, exploiting the scandalous and criminal situation and are similar to Russian newspapers of the 1990s, the Russian-language press of Ukraine is politicized and involved in the information war.

The degree to which the Russian-language press is involved in the problems of the Russian-speaking population directly depends on political circumstances. The topic of the rights of Russian speakers can be aggressively emphasized, as, for example, in part of the Russian-language Ukrainian press, sound muffled but persistent, as in the Baltic media, presented officially and idealized, as in most Central Asian and a number of Caucasian Russian-language publications.



Most Russian-language publications today are convergent media. Under the auspices of the Russian press, forums, blogs, and websites are created, mainly serving the Russian-speaking population with information, but also telling local residents about Russia and Russians - these are cross-cultural projects.

The technical development of the media and the emergence of new manipulation techniques allow modern propagandists to easily make mountains out of molehills, denigrate whites, and present yesterday's hero as a criminal. Modern man does not have critical thinking and cannot recognize the fact that he is being manipulated, and his consciousness has been invaded and remade in his own "image and likeness." Therefore, the media are truly "new Vaticans," as sociologist Alexander Zinoviev said, and their influence on the minds of today is many times higher than the influence of religion on the common man in the Middle Ages. In some countries of the post-Soviet space, for example, in Estonia, the pyramid of the Russian press at the republican level was destroyed in the 90s. XX century [5]. Of the daily national newspapers published in Russian, one can name only the version of the Estonian-language newspaper Postimees (published 3 times a week), which is clearly loyal to the authorities and contains up to 70% of translated materials. The situation may repeat itself in Latvia. Five years ago, four daily newspapers in Russian were published there and new publishing projects arose.

In 2015, only Vesti Segodnya remained among the daily ones. Explaining what happened, the editors-in-chief, invited for a discussion on the Delfi portal, agreed: according to the laws of the market, so many Russian newspapers cannot survive in a small country. The main thing, says Olga Avdevich, former editor-in-chief of the newspaper "Subbota," is that "the newspaper remains, because the Russian community, without its daily socio-political newspaper, will greatly weaken its already vulnerable positions" [3].

An important characteristic of the prevalence of the Russian language is the level of information consumption in Russian, namely the proportion of citizens of the post-Soviet space included in Russian-language media channels (television, radio broadcasting, print media).

Advanced social groups of citizens of the newly independent states (young people, citizens with higher education, residents of capitals) use Russian more often than the rest of the population. This phenomenon in some countries may give rise to the transition of the Russian language from the mass to the elite (analogous to the use of French by the Russian nobility in the 19th century), when it will be used mainly by the intelligentsia, international businessmen and politicians. But this is only possible where the national elite does not see itself as threatened by competition from Russian-speaking groups.

With a certain intensification of ties with Russia, this practice is so-called. "prestigious" behavior can also generate an increased demand for learning the Russian language (for example, Armenia).

Here it is necessary to say about the absence of a detailed and funded at the state level program for the support and development of contracts between educational and scientific institutions of neighboring countries.



Such contacts occur mainly at the level of personal initiative of rectors of higher educational institutions. But it is precisely scientific personnel, cultural and language exchange, establishment, promotion, support and coverage of such activities that would be one of the best means of creating a positive and attractive image of Russia on the world stage.

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**THE HISTORY AND SPECIFIC LINGUISTIC FEATURES OF MAGIC SPELLS
IN ENGLISH**

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Abstract

This article explores the history and specific linguistic features of magic spells in the English language. It delves into the origins of spell casting, tracing its roots to ancient civilizations. The article also discusses the various types of spells, including love spells, protection spells, and healing spells, and how they have evolved over time. Additionally, it examines the role of magic spells in literature and popular culture, highlighting their enduring fascination and influence. Finally, the article considers the ethical considerations surrounding spell casting and the controversy surrounding its practice. Overall, this article provides a comprehensive overview of the rich and complex history of magic spells in the English language.

Keywords: Anglo-Saxons, Druids, Normans, myth, wizard, magic, spell, charm, incantation, enchantment, occult, curse, hex, jinx, witchcraft.

Introduction

We all know that every country in the world has its own magic in its history, values, and some hidden and mysterious regions. As a proof of our opinion, we should emphasize that the remains of the buried body of a young child, found in one of the caves in the territory of present-day Iraq, about 95 thousand years ago, testify to the fact that mankind had the concepts of the second, i.e., the eternal world. It can be seen that since those times, religious imaginations have been formed that shape the behavior of people, and the emergence of religion has opened the way for the creation of magic [4, p. 14].

Since the beginning of mankind, they have created weapons and fire in order to control the environment, and these skills have provided them with certain natural phenomena beyond the power and control of mankind, such as the rising and setting of the sun, birth and death. showed that they are weak in front of the Sikhs. For this reason, they have come up with various ways to control the material world in which they live with the help of spirits. For example, 17,000 years ago, people of the Stone Age carved the footprints of various animals on the cave walls in the Lascaux cave in today's France, indicating that it was a ceremony for their successful return from hunting.



The materialism of the 19th century, the revolution at the beginning of the 20th century, and atheism of the following decades, and the scientific worldview formed in our country, were aimed at completely eliminating mysticism and religiosity from the folk traditions. However, research in recent years shows that magical consciousness permeates all aspects of folk life. In addition, researchers write about the magic of the postmodern era and the modern mass consciousness. V.S. A sociological study conducted by Svechnikov in 2002 showed that 75% of respondents who considered themselves atheists believed in magic. Often, researchers such as Gurevich, Krutous, Eco associate the magic of mass consciousness with the interrelationship between periods of crisis, transition and mysticism, irrationalism. Umberto Eco emphasizes the tendency of the Middle Ages to myth and symbolism, and states that this "was reflected in the escape from reality, the decline of cities and the destruction of villages, crop shortages, foreign invasions, cholera epidemics, neurotic fears, early deaths" [12, p. 114].

The historical period that we are studying is a period of fundamental changes in our country, a period of transition and crisis with the decline of industrial production, the destruction of agriculture, and the redistribution of property. The terrible disparity in the material condition of the people, the dead village, the criminalization of all aspects of life without exception, corruption and people's distrust of the future in the face of various violations, alcoholism, drug addiction, civil asthenia and, as a result, mysticism and situational, shallow religiosity have created self-doubt. Thus, I.A. Sedakova, considering the traditional culture of the Bulgarians, notes that "in recent years ... there has been a significant interest in occult sciences and magical practices; In Bulgaria, both in the villages and in the cities, even among the intelligentsia, the belief in warding off the "evil eye" is very strong [10. p. 52].

Results and Analysis

When considering the phenomena related to magic and the mythical thinking that creates them in diachrony (on the basis of research materials of different chronological layers), it is necessary to recognize that it is related to the concept of so-called primitive, cultural and pralogical thinking, not only magical and mythical. Thus, magic has been formed as one of the permanent and necessary components of human intellectual activity and social consciousness. Ya.E. Golosovker, A.F. Kosareva, A.F. Losev. Ya.E. Golosovkers see in the myth the vision of an imaginary, miraculous object and the knowledge of the world sealed in images with all its glory, horror and mystery. A.F. For Losev, a myth is a "real, material and emotionally created reality", "a necessary category of consciousness and existence in general" [5, p. 14]. Recognizing the permanence of the category of magic and incantation suggests not only the need for further study of the phenomenon of magic and the associated vocabulary, but also a new approach to its consideration. E. Kassirer, language and myth, religion and art with different spiritual dimensions have an independent structure, each of them is "the main follow-up part of understanding the world and creating an ideal, unlike scientific-theoretical knowledge, it has its own special purpose and its own special right to exist he wrote. In other words, myth and religion can be understood not through the laws of formal logic, but through their own "principle of form" [6, p. 275].



Thus, the language of magic has its own structure and semantics that require special attention. Many studies in the field of magic are currently being conducted (within an anthropological approach) in connection with not only the everyday life of a person, but also looking behind the veil that exists in his everyday life, seeing his true purpose, desires and aspirations, understanding his personal life, mentality, feelings, passions. There is no doubt that each of the magic rituals should be studied independently from all the necessary aspects. At the same time, it is also useful to consider the phenomenon as a whole, which allows us to present general formal-conceptual outlines of its real existence. In this regard, it is appropriate to consider magic units from the point of view of the "means" of the magic effect, which allows to understand the nature of symbolism and embodiment, their formalization, expression in magical speech to a certain extent [11, p. 5].

Discussion

In the 14th century, mystical ideas and concepts such as magic and spells spread widely in England. The regions bordering England, that is, Wales and Scotland, also had special magic associated with their own wizards and witches. Also, today England, which has become one of the leading economies of the world, was considered the center of English magic and sorcery. Since the English language became the sole language of science, international communication, and trade throughout the world, England has been the most important region for the world's wizarding arts for centuries [2, p. 5]. If we look at history, it was here that the Druids performed their magic in front of the famous Julius Caesar's army that crossed the Thames River. In addition, Dr. John Dee, the astrologer of Queen Elizabeth I, collected a whole collection of books devoted to magic, learned about the world of magic from them, and communicated with angels through his magic mirror. In this region, magicians dressed in the hermetic order of the golden dawn invoked the gods and danced naked in their residences outside the city. It was in London that the clergymen's union near Belgrave Square began to investigate the mysteries of life after death. In addition, representatives of various foreign eras also became interested in the world of English magic. For example, the American woman Dr. Christina Oakley-Harington, during her first visit to London, showed great interest in the history of the Elizabethan era and the astrologers and magicians of that time. According to him: "You can feel the magic and enchantment in every corner of the streets of London" [4, p. 14].

England's magical history dates back to the first human settlement. People suffer from the power of nature such as natural disasters, floods, fires, and earthquakes, and they start looking for salvation from magic to eliminate them, get rid of them and control them. As a result of the development of such sciences over the centuries, the history of magic became more complex and colorful in its own way. Even among the people of today's modern 21st century, we find magicians, astrologers and fortune-tellers who live ordinary lives and at first glance do not differ from ordinary people. We can learn from some written sources that in the 8th century, the people called the Normans ruled the whole world with their magic. The Normans believed that the world was full of mystical creatures such as giants, elves and gnomes, and that all trees, rocks, rivers and even houses were inhabited by spirits and giants.



Female witches were central to Norman magic. Despite the notion that the Normans controlled fate, they were believed to have the ability to foresee and even change the future through the use of "sedhr", that is, communication with spirits. For example, Norman witches were next to the mother of every new born baby and created the child's destiny by giving mothers a special porridge called "nornagret". It was believed that as soon as the mother tasted the porridge, a bright future was written for her child. The magic of the Normans was unique, they looked for various signs in nature, for example, storms, eclipses, lightnings were understood as messages from the Gods. Also, depending on the flight of birds, they understood different meanings, i.e. the eagle flying before the war meant success in that war.

In addition, as a magical ritual, they made animal and even human sacrifices to the Gods. Also, by writing magical words on various weapons, they were dedicated to the Gods and had magical powers. At this point, we should mention about Runic writing. This script was first used by the Normans and it consists of angular characters. The word "Rune" means "letter", "secret", and this language was a special language of power and magic. This writing alphabet appeared in the III century AD and was used until the XVI-XVII centuries. Some runic writings were used as spells or incantations, and when spoken in a poetic tone, indicated the power of magic [4, p. 70].

With the improvement of weather conditions and the beginning of peaceful life, activities such as priesthood and magic began to develop rapidly. Through the works of famous classical writers such as Julius Caesar and Diodorus Siculus, we can know that a Celtic tribe called the Druids lived in Britain before the 1st century BC. The word "Druid" has been translated as a sorcerer and soothsayer, but in fact, this word means "wise". Caesar encounters them for the first time in France, and in his "Gallic Wars" he describes this tribe as follows: "The Druids came into England by sea, and their peculiar nature is that they are more devoted to spiritual education. special skills such as the magic of sound and the power of words were taught from a young age so that they could enchant their listeners, and through these skills they were able to tell hundreds of stories about who their ancestors were and their heroic deeds. have and brought up

Druids were known as the priests of the Celtic tribes. The Druids developed their own ritual forms that became known as the Western Mystery Tradition. This magical inheritance is explained as follows: a magic circle is formed, this circle is consecrated with fire and water, and the four elements and cardinal directions are invoked. In this way, the Druids also founded their language, and this language was called "The Tree Language of the Druids" [3, p. 83]. In their own language, called Ogam (Old Irish), this language consists of 25 letters in the shape of plants and trees. and written on the surface of the jewelry. In addition, there were several plants, trees, herbs and animals that had magical and divine powers for the Druids. In the 5th century, when the Roman Empire fell and the British colonies were freed, the Druid faith also declined, and a new Christian faith began to emerge. We can learn about the unique spell and magic of this period through the legend of the magician Merlin and famous fantasy writer J. K. K. Tolkein's works such as "The Hobbit" and "The Lord of the Rings". This period is called the Anglo-Saxon period, and it includes the magic of the 5th



and 7th centuries. The magic of the Anglo-Saxon period is well described by the Lacnunga manuscript, which contains medical and magical texts written in the tenth and eleventh centuries. In order to combat various infectious and poisonous diseases or the infertility of cultivated land, the Anglo-Saxons called on their local sages ("wizard" - a word from the Middle English wys, which in modern English means "wise" are used) apply. The Lucnunga Manuscript reveals how such sages used various incantations, incantations and various rituals. For example, the spell "Nine Herbs Charm" was used to cure nine types of poisonous and infectious diseases and to increase the productivity of cultivated land by chanting it three times.

These nine stand in opposition against nine poisons

Recall, mugwort, what you declared,

What you established, at the Great Council.

“Unique” you are called, most senior of herbs.

You prevail against three and against thirty,

You prevail against poison and against infection,

You prevail against the harmful one that travels the throughout the land [1].

Sir Walter Raleigh, who lived in the 17th century, wrote about magic: "The art of magic is the art of worshiping God." The magician Alesti Crowley, who lived 3 centuries after him, defined magic as follows: "Magic is the science of self-awareness, and the application of this science in practice is a great art." Indeed, we agree that magic and the use of the forbidden science of this mysterious world is an art of its own.

In English, there are several scientific concepts that belong to the semantic field of magic, and distinguishing them from each other greatly contributes to the knowledge of a linguist. Below we will take a closer look at a few of them: The first of them is the term "Spell", which is a collection of words that have magical power. Lexical units such as "Charm", "Incantation", "Enchantment", "Occult", "Curse", "Hex", "Jinx" also have their place of use and meaning.

Conclusion

Language plays an important role in the social and cultural development of a nation. The units sealed in the language serve not only as a means of communication, but also directly reflect the national values, customs, traditions, and lifestyle of the speakers of this language. Concepts about a certain nation are reflected in stereotypes. According to the reflection of stereotypes in the language, the types distinguished by linguists, their change over time and other characteristics serve to more fully understand stereotypes and reveal the problems of their study more vividly [8, p. 4]. Its semantics reflects the thousand-year experience, culture, economic environment, interest, and way of life of a certain nation, which is the reason for conducting many scientific studies in recent years. In every language, nation, people, there are concepts of spells and magic that are included in such stereotypes, and as an important phenomenon, it is reflected in folklore, folklore, fine arts and literature in general, because the language develops together with the nation and with it. dies, it also determines the worldview of the language owner, forms the national worldview and



embodies a system of specific tasks. The existing lexemes of spells and magic in the languages we are analyzing differ from the etymological point of view in different languages, because the linguistic-cognitive capabilities of a culture can be determined with the help of etymological analysis. If the lexicon of spells and magic in English goes back to the ancient Greek language. This case proves the influence of religion on the formation of this lexicon.

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**STRATEGIES TO CULTIVATE LEADERSHIP SKILLS IN CHILDREN: A DEVELOPMENTAL APPROACH**

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Abstract

Leadership skills are fundamental for success in various spheres of life. Nurturing these abilities in children can have a positive impact on their future. This article aims to explore effective strategies to foster leadership qualities in children, emphasizing their developmental stages and practical applications.

Keywords: Leadership skills, childhood development, encouraging initiative, independence, promoting emotional intelligence, empathy.

Introduction

The definition of "leadership" varies among academics. The emphasis placed on personality traits, interpersonal influence, cognitive and/or emotional capacities, character in relation to group orientation, and appeal to one's own interests as opposed to those of the group can all vary among approaches. Additionally, definitions differ in how much emphasis is placed on behavioral styles and whether they are primarily normative or descriptive (Den Hartog & Koopman, Citation 2001). Many times, leadership is seen as an advanced competency that is multifaceted and complex rather than as a fixed personality trait. This definition views leadership as a dynamic process that can be enhanced with the right interventions (Sisk, Citation 1993). Introduction lays the foundation by defining leadership in children, highlighting its significance, and stating the purpose of the article.

Literature Review

Understanding Childhood Development and Leadership: The intersection of childhood development and leadership is a fascinating area that explores how an understanding of developmental psychology can inform effective leadership strategies when working with children or in contexts involving child development. Understanding childhood development is crucial. Jean Piaget's stages of cognitive development, Erik Erikson's stages of psychosocial development, and other developmental theories provide a framework for comprehending how children grow, learn, and form their identities. Leaders who grasp these theories can tailor their approaches to better support and guide children through various developmental milestones. Encouraging initiative and independence in individuals,



particularly in educational or leadership settings, is a multifaceted aspect drawing from various academic disciplines. Developed by Deci and Ryan, SDT focuses on intrinsic motivation and autonomy. Research within this theory emphasizes the significance of autonomy, competence, and relatedness in fostering initiative and independence. Academics explore how environments can be structured to support these basic psychological needs. Understanding how to encourage initiative and independence involves interdisciplinary research, drawing from psychology, education, sociology, management, and other related fields. Academic insights in these areas contribute to developing strategies and frameworks for fostering environments that nurture and support individuals in taking proactive, independent actions. Promoting Emotional Intelligence and Empathy: Research in leadership and emotional intelligence highlights how EI traits like self-awareness, self-regulation, empathy, and social skills are essential for effective leadership. Academics explore how these qualities contribute to better decision-making, conflict resolution, and team management. Studies in leadership theory emphasize the role of empathy in effective leadership. Academic research explores how empathetic leaders understand their team members' perspectives, foster a supportive work environment, and build stronger relationships, leading to increased trust and collaboration. Academic research on promoting emotional intelligence and empathy in leadership offers valuable insights into the traits, behaviors, and strategies that contribute to effective leadership. Understanding and fostering these qualities in leaders can lead to more inclusive, empathetic, and successful organizational cultures.

Conclusion

These days, there are a lot of expectations placed on leaders by society regarding how they should manage their companies and come through challenging times. For instance, Gregersen, Morrison, and Black (Citation1998) have identified four strategies that are particularly effective in producing global leaders: international travel combined with immersion in the host nation's culture; close collaboration in teams with individuals from diverse backgrounds and perspectives; classroom and action learning project-based training; and foreign assignments that help future global leaders expand their perspectives. It could be argued that young people are more easily imbued with the aforementioned qualities than "experienced" executives are. This article summarizes the importance of cultivating leadership skills in children and reiterates the significance of the discussed strategies. Provides a call to action for stakeholders invested in children's growth and development.

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**INVESTIGATION OF CROSSBARS WITH REINFORCED CONCRETE AND COMPOSITE REINFORCEMENT**

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Abstract

This article presents an analysis of the results of research work on the study of composite reinforcement elements, widely used at present in the restoration of concrete structures in buildings and structures under construction in the Republic of Uzbekistan and abroad.

Keywords: composite, basalt, concrete, smoothness, strength, texture, polymer.

Introduction

Nowadays, polymer composite fittings are effectively used in road transport infrastructure facilities, high electromagnetic fields formation, chemical industry, water preparation and treatment, melioration facilities, construction of seaports and port facilities, urban engineering infrastructure facilities, construction of Metropolitan mines and tunnels, as well as the construction, repair and reconstruction of load-bearing and barrier structures of buildings and structures.

A promising scientific direction is the use of polymer composite fittings instead of steel fittings of reinforced concrete structures, which work especially in conditions of an corrosive environment.

In the development of the economy of the Republic of Uzbekistan, in raising its material and technical base, it is important to introduce into practice those elements that have new constructive solutions, which are economically efficient, based on theoretical and experimental research.

The application of reinforcing bending elements with composite fittings in production, residential, public buildings and engineering structures requires a scientific basis based on a new theory, confirmed by the results of expressive studies. On the basis of scientific research, appropriate recommendations and practical solutions should be developed.

To carry out experimental studies, test models-sample barriers-were prepared, the cross-section of which was rectangular. Simple heavy concrete was used for the beams. As a binder, the portlandement of the cement plant "Turon" in the Beshariq District of the Fergana region with an activity of 42.5 MPa for concrete was applied. As fillers, Quartz river sand from Akbarabod quarry, Quwa district, Fergana region, whose fraction is 5-15mm li granite Flint (sheben) and the bulk modulus is M2, 25, was used. The composition of the concrete was chosen so that its cubic strength would have a compressive strength



corresponding to the B25 class. Granite Flint was sown, washed in a special device, and then dried (Table 1). Material consumption for 1 M3 concrete mixture is given in Table 1[1-11]. In conjunction with the fence samples, cubes with dimensions of 10x10x10 CM were also made from the same mixture. After 28 days of storage under conditions of normal temperature $t=20\pm 20^{\circ}\text{C}$ and relative humidity $\varphi=60-65\%$, the sample cubes were tested in a hydraulic press until they broke under compressive strength.

Once the cubic strength of the concrete was determined the corresponding prismatic strength $R_B=0.75 R$ was calculated by expression, while the strength in the stretch $r_{bt}=0.5\sqrt[3]{(R^2)}$ was calculated by formula[12-16].

To achieve the set goal, it was necessary to carry out the set tasks. For this, experimental-theoretical studies were required.

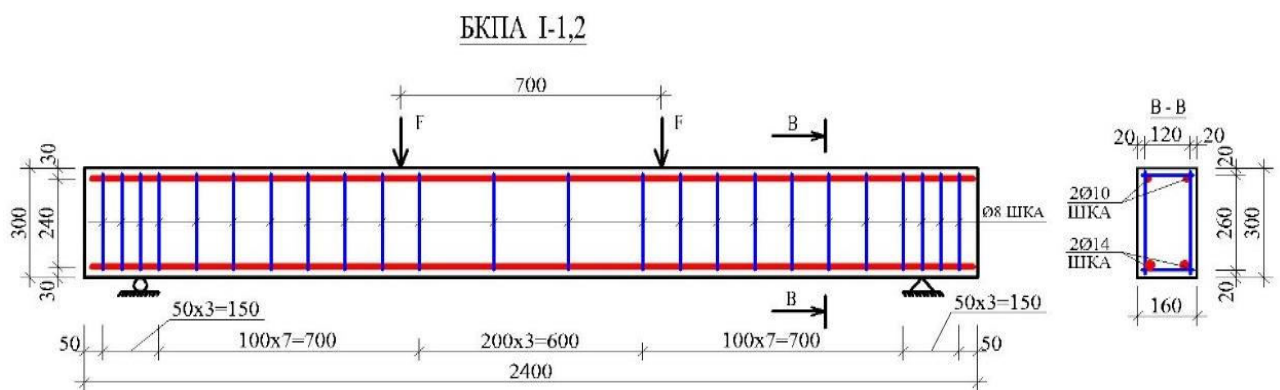


Figure 1. Fitting and loading schemes of sample barriers.

For experimental studies, beams equipped with composite fittings with a cross-section size of 16x30cm, a length of 240 cm were prepared. The beams were made in wooden molds. The inner surface of the molds was covered with metal lists. 2Ø14 ShKA to the stretching area as the working fittings 2Ø10shka to the compression area, Ø8ShKA fittings as the housings were laid with a step of 7.5 cm (figure 2.2). Composite fittings designed for khomuts were attached to longitudinal fittings with soft steel wires, woven and fastened. Fittings were fixed and fixed to the molds in the place of the project. The barrier samples were made from heavy concrete of class C25. Together with the sample beams, cubes of 6 and 9 pieces, the size of which is 10x10x10cm, were also made of the same concrete at the same time.

Table 1. Concrete composition for sample beams

№	Naming	quantity	unit of measurement
1	Fergana region Beshariq district "Turon" cement plant portland cement M400	394	kg
2	Sheben	1197	kg
3	Quartz sand	495	kg
4	Water	212	litr
	Density of concrete:	2298	kg/m ³
	Water / cement ratio of concrete (S/S)	0,54	



The concrete was prepared in a concrete mixer with a volume of 0.25 m³ and compacted using a vibrator (vibrator), pouring it into molds.

The materials were dosed in accuracy up to ± 0.1 kg by weight. For this, electronic scales with high accuracy were used. The results of the tests of cubes are presented in Table 2.

Table 2. Results of testing cubes made of sample barrier concrete

№	Fence cipher	Concrete age (diary)	Edge of sample cubes, cm	Concrete strength in compression, MPa	Strength of concrete		
					R _b , MPa	R _{bt} , MPa	E _b *10 ⁻³ MPa
1	BKPA -1	30	10	32,3	18,3	1,58	29,5
2	BKPA -2	30	10	30,4	17,3	1,51	27,5

Barrier samples were emptied from the molds after the cubes were kept in the mold for 5-7 days and kept in laboratory conditions until testing. The initial cubes were tested 28 days after molding. They were then found to have cubic strength even before testing indirect barriers. Based on the results of the compression testing of cubes after 28 days, it was found that the concrete of the sample barriers B25 is suitable for classes in strength to compression. The tests were tested on a 50-ton hydraulic press. Sample-Cube testing was carried out until the breakdown. The tests were carried out on the basis of the requirements of GOST 10180-2012, which were established according to the standard method. The test results are listed in Table 3[17-21].

Table 3.

Concrete type	hardening conditions	Concrete age, sutka	R, MPa	R _b , MPa	R _{bt} MPa	E _b *10 ³ , MPa	ε _{bn}	γ _{bn}	W, %
In normal harsh	natural conditions	28	29	18	1,55	27,5	205	0,82	3,6

The dimensions of the sample barriers prepared for the experiment, the loading range affecting the sample barriers, the concrete classes used and the number of longitudinal stretch and compression fittings, the diameter, the number and diameters of transverse fittings (housing) are listed in Table 5.

The main characteristics of sample barriers. Table 4.

Sample №	Sample to ' sin cipher	Dimensions, sm			Armature			Load range, cm	Project Class of concrete
		b	h	h ₀	Transverse fittings (raw materials)	Longitudinal stretching	Longitudinal compressible		
BKPA -1		16	30	28,0	2Ø 8 ShKA	2Ø 14 ShKA	2Ø 10 ShKA	70	B25
BKPA -2		16	30	28,0	2Ø 8 ShKA	2Ø 14 ShKA	2Ø 10 ShKA	70	B25



The beams were mounted on the stand's 2-screw supports designed for sample testing. One of the scarves is made excitable, the other is made excitable. The mass between the forces was 700 mm, while the distances from the supports to the load were 420mm. The distances from the base to the edge of the beams are 100 mm Dan. The cargo was given in a 40-ton hydraulic domkrat. Distributive traverses were used for this.

Prior to the start of the tests, initial measurements were recorded on all pribors installed in the sample barrier. These were taken as "conditional zeros". Loading was slowly given in several stages. The stage load accounted for about 10% of the destructive load. After each stage was loaded, it was expected to stabilize for up to 20 minutes.

After each stage load was given and at the end of the stage, indicators on the meter pribors were recorded. In the experimental process, the positioning and installation schemes of measurement pribors and devices on sample barriers are shown in the figure below (Figure 5)[22-26].

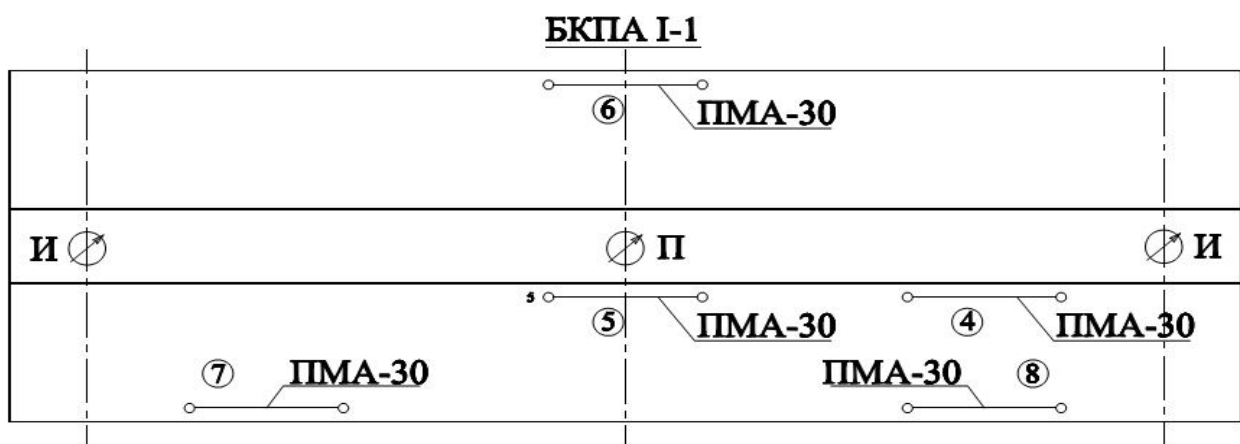


Figure 2. Location and installation schemes of measuring pribors and devices on sample barriers;

PMA-30 is a portable messura (base 300 mm) for measuring deformations in reinforcement; PMB-30 is a portable messura (base 300 mm) for measuring deformations in concrete; I is a clock-Type Indicator;

Deformations of the concrete and reinforcement, the sagging of the beams, the formation time (load) of the cracks, and the width of the opening were measured until the samples were broken. The value of the load was recorded from domcrath's manometer. After the load reached the specified value, the valve of the domkrat was clamped and held at that value for 15-20 minutes. After the indicators were recorded through the pribors, the next stage load was given. In this way, the tests were continued and carried out until the samples were broken.

Results of the study: after the end of the tests, the position of the formed cracks was determined, samples were photographed and the height of the cracks was measured, the distances between them were determined, the protective layers of the working armature were determined and the working height was measured.



During the test, the deformations of concrete and fittings, the time and amount of load of the formation of normal and oblique cracks, the oscillations of the barrier were measured and recorded.

The deformations were measured using clock-type indicators with an accuracy of 0.01 mm at the base of 300 mm with a portable measuring tool, the oscillations were measured at three points of the barrier-between the range and at the supports with a measurement accuracy of 0.01 mm clock-type indicators. Deformations of stretch and compression fittings, as well as the concrete compression area, were also measured at a 300 MM base at three previously defined points in cross-section height.

At the time of the experiment, the surface of the sample barriers at each stage was carefully examined, as soon as the initial cracks appeared, they were immediately marked and recorded, and their width was measured. At the same time, the value of the achieved load was also set.

When the given load value reached about 85-90% of the disruptive load, the gauge gages were removed and loaded until the sample was broken, and its breakdown character was monitored. In the sample barriers, the breakdown occurred in oblique sections.

At the time of the experiment, sample breakdowns occurred at values close to accounting loads, in all cases it was noted that the experimental load differs from the accounting load by an average of 10-20%.

After the experiment, the samples were removed from the stand and placed in a separate place, and the crack card was drawn and photographed. It was noted that the location of the cracks in the beams, their dimensions, the width of the opening were very similar and close to each other.

In cases where the fracture begins with a stretching armature, a crushing fracture of the compressive area concrete has been found. In the area of pure flexion also a condition close to the fracture occurred when the fracture occurred in oblique sections.

After the strength value (0.9-0.95) given in most of the broken samples in terms of oblique cross-sections reached the limit values, the junction nodes of the knots with longitudinal fittings-a violation of the links occurred, and the shear of the tightening areas of the barrier was observed.

In order to measure the deformations produced under force in longitudinal Composite fittings, in the process of preparing the fittings of the sample-beams, hammocks made of steel pipes with a wall thickness of 2-2.2 mm were worn on the stretch and compression fittings. Holes are drilled in the grooves with $\varnothing 5$ mm, which are located in opposite directions. Over the holes, the $\varnothing 5$ mm nut was welded to the Tube-Housing by means of an electric arc. After being worn on a composite armature, the hump was secured by twisting it from the inside using a $\varnothing 5$ mm short stiffener bolt until it was stirred to the armature. Externally the same $\varnothing 5$ mm long bolt was unscrewed freely. The long bolt was pushed out to 2-3cm beyond the opening hole in the sample barrier mold. The part of this bolt with fittings up to the inner surface of the mold was wrapped with $\varnothing 1-2$ mm soft wire dense and covered with a thin plasticine coating. When the beams were molded and concreted, they



were emptied from the molds after 5-6 days had elapsed, and the wires wrapped in the long bolts of the device were removed.

Reinforcement indicators of sample barriers Table 5.

Sample barrier cipher	Armature										Distance between loads, sm	Longitudinal reinforcement coefficient μ_l , %	Transverse reinforcement coefficient μ_{tw} , %
	Transverse (vertical grooves)	Khomut steps, S_{fw} , mm	R_{fw} , MPa	A_{fw} , sm^2	Longitudinal stretching	R_l , MPa	A_l , sm^2	Longitudinal compressible	R_{fs} , MPa	A_{fs} , sm^2			
BKPA-1	2Ø 8	75	200	1.01	2Ø 14	490	3,08	Ø 10	100	1.57	70	1,07	0,118
BKPA-2	2Ø 8	75	200	1.01	2Ø 14	490	3,08	Ø 10	100	1.57	70	1,07	0,118

Long bolts were pulled out before the beams could be tested and replaced with Ø10mm slats with an Ø5mm rezba opening at one end. These slats have special recesses (Kerns) on which the indicator barbell is retracted, to which the movable messura barbells are retracted, and deformations of the longitudinal armature at a base of 300mm have been measured. Devices in the form of a hump were installed in such places on longitudinal fittings. In this, the crossbars were 300 mm, and they were placed in the middle of the area of pure bending and the interval of shear[27-29].

Conclusions:

The load-bearing capacity of single-reinforced bending concrete elements with shishaplastic sterjens will be very close to that of similarly reinforced steel reinforced elements;

-the load-bearing capacity of reinforced elements according to the double-armature scheme with composite fittings is dictated by the fact that the reinforced elements with steel fittings according to the same scheme are lower than the load-bearing capacity, and this situation is explained by the low resistance of the composite armature in compression;

-the opening width of cracks in flexible concrete elements with glassaplastic Composite reinforcement is determined to be significantly higher (larger) than in steel reinforcement elements, this is explained by the fact that the composite reinforcement has a small elasticity Module (~4 times);

-in composite reinforced bending concrete elements, the oscillations are also greater than those of reinforced elements with steel sterjens, this situation has also been explained by the low modulus of elasticity in basaltplastic and shishaplastic fittings; however, at normative loads, it was noted that even in composite reinforced bending concrete beams, the amount of oscillations is at the level of requirements for reinforced concrete structures.



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**INVESTIGATION OF BASALT REINFORCEMENT CROSSBARS**

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Abstract

In recent years, the President of the Republic of Uzbekistan and the Cabinet of Ministers have been making important decisions to raise the standard of living of the population and improve living conditions. In the implementation of these decisions, it is necessary to create economically inexpensive construction structures with high durability, uniqueness, and their practical application in the construction of production enterprises, residential buildings, and engineering structures, which are necessary for the economy.

Keywords: composite, basalt, concrete, flexibility, strength, messura, polymer.

Introduction

In recent years, the President of the Republic of Uzbekistan and the Cabinet of Ministers have been making important decisions to raise the standard of living of the population and improve living conditions. In the implementation of these decisions, it is necessary to create economically inexpensive construction structures with high durability, uniqueness, and their practical application in the construction of production enterprises, residential buildings, and engineering structures, which are necessary for the economy. The issues raised in this direction include the use of composite materials, which are relevant today. The use of composite materials in construction increases the overall reliability and technical economic efficiency of industrial, residential, public buildings and engineering structures in accepting permanent, temporary and earthquake stresses.

The use of flexible elements reinforced with composite reinforcements in industrial, residential, public buildings and engineering structures requires a scientific basis based on a new theory, confirmed by the results of experimental research. Appropriate recommendations and practical solutions should be developed based on scientific research[1-5].

Year by year, the volume of construction and improvement works is increasing in the Republic of Uzbekistan. In order to successfully implement the planned large-scale construction works, extensive use of new innovative technologies is required. The introduction of polymer composite reinforcements into the construction practice in the conditions of Uzbekistan requires their research in the conditions of our country. Therefore, conducting research in the direction of reinforcement of concrete structures with polymer composite reinforcements is an urgent problem of social and economic importance.



Therefore, it is appropriate to conduct complex experimental-theoretical studies to determine the state of stress-deformation of flexural concrete structures equipped with basalt-plastic composite reinforcements, the formation and development of cracks in them, uniformity, failure patterns and strength. . For this, it is necessary to experimentally study the resistance of bending moments and transverse forces of flexible elements reinforced with basalt plastic rods made of ordinary heavy concrete.

Materials, constructions and test models:

Test models-sample beams with a rectangular cross-section were prepared for conducting experimental studies. Ordinary heavy concrete was used for the beams. Portland cement of the Turon cement plant in Beshariq district of Fergana region with an activity of 42.5 MPa was used as a binder for concrete. As fillers, quartz river sand from Akbarabad quarry, Kuva district, Fergana region, with a fraction of 5-15 mm and a bulk modulus of M2.25 was used. The composition of the concrete was chosen so that its cubic strength would have a compressive strength corresponding to the class B20 and B35. Granite limestone was sieved, washed in a special device and then dried (Table 1)[6-9].

Granulation composition of ordinary heavy concrete aggregates Table 1.

Filler type	Residue in % by weight on a sieve with a hole size of mm								
	20	15	10	5	1,25	0,63	0,315	0,14	0,07
Granite limestone	2-4	4-6	90-95	92-100	-	-	-	-	-
Quartz sand	-	-	-	-	1-2	4-5	12-15	45-50	90-100

The consumption of materials for 1 m³ concrete mixture of class B30 is given in table 2.

Concrete composition for sample beams Table 2.

№	Naming	Amount	Unit of measure
1	Portland cement M400 of "Turon" cement factory, Beshariq district, Fergana region	380	kg
2	pebble	1170	kg
3	Quartz sand	670	kg
4	Water	165	litr
5	Density of concrete:	2385	kg/m ³
6	Concrete water/cement ratio (S/S)	0,43	

The consumption of materials for 1 m³ concrete mixture of class B20 is given in table 3.

Concrete composition for sample beams Table 3.

№	Naming	Amount	Unit of measure
1	Portland cement M400 of "Turon" cement factory, Beshariq district, Fergana region	300	kg
2	pebble	1220	kg
3	Quartz sand	720	kg
4	Water	150	litr
5	Density of concrete:	2390	kg/m ³
6	Concrete water/cement ratio (S/S)	0,50	



The materials were dosed with an accuracy of ± 0.1 kg by weight. An electronic scale with high accuracy was used for this purpose. The results of the cube tests are presented in Table 4.

Test results of cubes made of sample beam concrete Table 4.

№	Beam cipher	Age of concrete (days)	Edge of sample cubes, cm	Compressive strength of concrete, MPa	Strength of concrete		
					R _b , MPa	R _{bt} , MPa	E _b *10 ⁻³ MPa
1	2	3	4	5	6	7	8
1	BKPA -1	30	10	26,35	14,3	1,33	30,1
2	BKPA -2	30	10	25,42	13,9	1,30	29,6
3	BKPA -3	30	10	25,63	14,0	1,30	29,7
4	BKPA -4	30	10	26,34	14,3	1,33	30,1
5	BKPA -5	30	10	35,84	19,3	1,63	34,2
6	BKPA -6	30	10	35,45	19,1	1,62	33,8

Together with the beam samples, cubes with dimensions of 10x10x10 cm were prepared from the same mixture. After 28 days of storage under conditions of normal temperature $t=20\pm 20^{\circ}\text{C}$ and relative humidity $\varphi=60-65\%$, the sample cubes were tested in a hydraulic press until failure under compressive force.

After determining the cubic strength of concrete, the prismatic strength corresponding to it was calculated according to the expression $R_b=0.75R$, and its tensile strength was calculated according to the formula $R_{bt}=0.5\sqrt[3]{(R^2)}$.

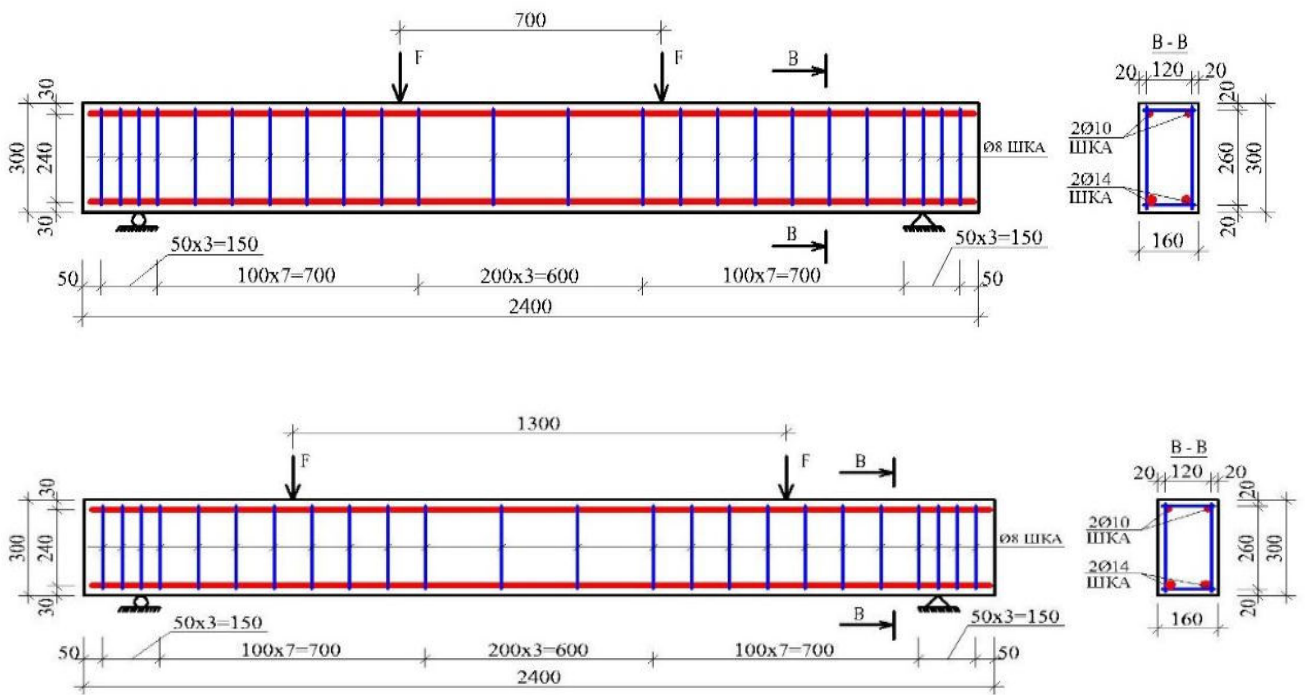


Figure 1. Schemes of reinforcement and loading of sample beams.

For experimental studies, 4 B20, 2 B30 beams with cross-sectional dimensions of 16x30 cm and length of 240 cm equipped with concrete and composite reinforcements were prepared. The beams were made in wooden molds. The inner surface of the molds was covered with metal sheets. In 2 test samples made of B20 class concrete, 2Ø14BKA reinforcements were



placed in the tensile area, 2Ø12BKA in the compressive area, and Ø8BKA reinforcements were placed in 7.5 cm increments as working reinforcements (Fig. 2.2). In 2 test samples made of B20 class concrete, 2Ø14BKA was placed in the tensile area as working reinforcement, 2Ø12BKA in the compressive area, and Ø6A-I reinforcements were placed in steps of 7.5 cm as clamps (Fig. 2.3). In 2 test samples made of B30 class concrete, 2Ø14BKA was placed in the tensile area as working reinforcement, 2Ø12BKA in the compressive area, and Ø6A-I reinforcements were placed in steps of 7.5 cm as clamps (Fig. 2.3). The composite reinforcements for the tie rods were welded to the longitudinal reinforcements with mild steel wires. Reinforcement wedges were installed and fixed in the formwork at the project site. Beam samples were made from heavy concrete of B20 and B30 class. Together with the sample beams, cubes of 6 and 9 pieces with a size of 10x10x10 cm were made from the same concrete at the same time.[10-15].

The sample beams were tested in bending on a force stand. The stand is specially designed to load the beams through two cumulative forces and test the midsection in pure bending.

The beams were mounted on 2 hinged supports of the stand for testing samples. One of the hinges is fixed and the other is movable. The distance between the forces was 700 mm, and the distance from the supports to the load was 420 mm. The distance from the base to the edge of the beams is 100 mm. The load was delivered using a 24-ton manually operated hydraulic jack. For this, dividing traverses were used.

After the tests, the location of the cracks was determined, the samples were photographed and the height of the cracks was measured, the distances between them were determined, the protective layers of the working fittings were determined and the working height was measured.

During the test, the deformations of concrete and reinforcements, the time of formation of normal and oblique cracks and the amount of load, the stiffness of the beam were measured and recorded.

The dimensions of the sample beams prepared for the experiment, the interval of application of the loads acting on the sample beams, the classes of concrete used and the number, diameter of longitudinal tensile and compressive reinforcements, transverse reinforcements (clamp) number and diameters are given in table 5.

Main characteristics of sample beams. Table 5.

Sample №	Sample password	Dimensions, sm			Reinforcement			Load range, sm	Design class of concrete
		<i>b</i>	<i>h</i>	<i>h₀</i>	Transverse reinforcement (clamps)	Longitudinal stretchy	Longitudinal compressible		
BKPA -1		16	30	28,0	2Ø 8 BKA	2Ø 14 BKA	2Ø 12 BKA	70	B20
BKPA -2		16	30	28,0	2Ø 8 BKA	2Ø 14 BKA	2Ø 12 BKA	70	B20
BKPA -3		16	30	28,0	Ø 6 A-I	2Ø 14 BKA	2Ø 12 BKA	70	B20
BKPA -4		16	30	28,0	Ø 6 A-I	2Ø 14 BKA	2Ø 12 BKA	70	B20
BKPA -5		16	30	28,0	Ø 6 A-I	2Ø 14 BKA	2Ø 12 BKA	70	B30
BKPA -6		16	30	28,0	Ø 6 A-I	2Ø 14 BKA	2Ø 12 BKA	70	B30



During the experiment, the failure of BKPA-1,2 samples occurred at values close to the calculated loads, the load of BKPA-3,4,5,6 samples was almost 2 times higher than the calculated loads. In sample beams 1, 2, it was noted that the experimental load differs from the calculated load by 10-20% on average. In sample beams 3, 4, 5, 6, it was noted that the experimental load differs from the calculated load by 85-95% on average.

In most of the damaged samples on the slope sections, the value of the given force (0.9-0.95) after reaching the Kult values, the nodes of the connecting rods with the longitudinal reinforcements were broken and the compression areas of the beam were sheared. observed. It was observed that the concrete lost its strength after the strength value reached (0.9-0.95) Kult values in most of the samples with failure in the compressive part.

It was observed that the amount of bending moments M_{crc} during the formation of cracks in the sample beams depends on the value of the distance "a" (shear interval) between the load and the support.

The values of the experimental M_{crc}^t and calculated M_{crc}^h bending moments normal to the element's longitudinal axis in the sample beams are presented in Table 6.

Formation of normal cracks in sample beams Table 6.

Sample beam cipher	The distance between the forces, sm	Bending moment in the formation of normal cracks, kNm		M_{ult}^t	$\frac{M_{crc}^t}{M_{ult}^t}$	$\frac{M_{crc}^t}{M_{crc}^h}$
		Experimental M_{crc}^t	Accounting M_{crc}^h			
BKPA-1	42	3,15	2,18	14,6	0,215	1,445
BKPA -2	42	3,15	2,17	13,7	0,21	1,451
BKPA -3	42	3,15	2,16	22,7	0,229	1,458
BKPA -4	42	3,15	2,18	23,8	0,132	1,445
BKPA -5	42	4,73	2,34	26	0,175	2,022
BKPA -6	42	4,73	2,36	26,9	0,176	2,004

The opening width of normal cracks was $a_{crc}=0.2-0.35$ mm at loads equal to half of the destructive load, the further increase of loads caused intensive development of normal cracks and a significant increase in opening width. When the ratio of step load to breaking load reached 0.6-0.85, the opening width of normal cracks was 0.4-0.7mm. The subsequent increase in loads resulted in violent opening of normal cracks.

It was found that the results of calculation of the opening width of cracks normal to the longitudinal axis of the element according to the method presented in ShNQ satisfactorily agree with the laws and quantities of changes obtained in the experiments.

Based on theoretical calculations, the values of M_{crc}^h are from 4.44 kN·m to 5.37 kN·m. The average value of M_{crc}^h was equal to 4.9 kN·m. The difference between the average value of M_{crc}^h and the smallest and largest values is 0.93 kN·m (5.2%) and 0.38 kN·m (3%), respectively. In other words, almost stable values for M_{crc}^h were obtained in the calculations.

The ratio of the experimental M_{crc}^t to the calculated (theoretical) M_{crc}^h was greater than 1 and averaged 1.23 in BKPA-1,2 sample beams, in BKPA-3,4,5,6 sample beams and



the average was 1.85. It was found that the average value of the experimental crack-forming moments in BKPA-1,2 samples is equal to 22% of the breaking moments. In BKPA-3,4,5,6 samples, the average value of the experimental crack-forming moments was found to be 9-11% of the breaking moments.

In the process of testing the sample beams under load, cracks directed obliquely to the longitudinal axis of the element were formed a little later than normal cracks. After the formation of normal cracks, the formation of oblique cracks was observed in the sample beams only after increasing the load in at least 1-2 stages.

In the experiments, it was found that the formation, development and opening width of oblique cracks depends on the amount of reinforcement of the sample beams with collars, the diameter and pitch of the collars, the shear interval a/h_0 , the amount and diameter of the longitudinal working reinforcement, and the strength of the concrete.

In theoretical calculations, the transverse force forming oblique cracks was determined according to the following formula:

$$Q_{crc}^h = 0,6 R_{bt,ser} b h_0 \quad (1)$$

For cases with a shear interval $a > 1.5x_0$, as a result of entering the ratio h_0/a instead of the coefficient 0.6 in the above formula, it was observed that the ratios of the experimental and theoretical oblique crack-forming forces are significantly improved. In this case, the formula for finding transverse forces in the formation of oblique cracks is expressed as follows:

$$Q_{crc}^h = \frac{R_{bt,ser} b h_0^2}{a} \quad (2)$$

but, $0.6R_{(bt,ser)}$ should not exceed bh_0 .

Formation of oblique cracks in sample beams

Table 7.

Sample beam cipher	Shear span (distance from support to force), sm	Transverse force in the formation of oblique cracks, kN		$\frac{Q_{crc}^t}{Q_{crc}^x}$	Q_{ult}^t , kN	$\frac{Q_{crc}^t}{Q_{ult}^t}$
		Experimental Q_{crc}^t	Accounting Q_{crc}^x			
BKPA -1	42	14,2	12,75	1,11	35	0,41
BKPA -2	42	14,8	12,35	1,19	34	0,44
BKPA -3	42	14,5	12,45	1,16	54	0,27
BKPA -4	42	14,9	12,65	1,18	57	0,26
BKPA -5	42	18,2	15,45	1,18	62	0,29
BKPA -6	42	18,9	15,35	1,23	64	0,30

In BKPA-1.2 sample beams ($a=42\text{cm}$), the initial oblique cracks were formed at loads $Q_{crc}^h=14.2-14.8$ kN, where the ratio $(Q_{crc}^t)/(Q_{ult}^t)$ was 0, It was 8. In BKPA-3.4 sample beams ($a=42\text{cm}$), the initial oblique cracks were formed at loads $Q_{crc}^h=14.5-14.9$ kN, where the ratio $(Q_{crc}^t)/(Q_{ult}^t)$ was 1, It was 25. In BKPA-5.6 sample beams ($a=42\text{cm}$), the initial oblique cracks were formed at loads $Q_{crc}^h=18.2-18.9$ kN, where the ratio $(Q_{crc}^t)/(Q_{ult}^t)$ was 1, It was 37.



As the load increased, intensive opening of oblique cracks occurred. Especially at the load level of $0.8Q_{ult}$ and more, oblique cracks developed rapidly, their opening width was 1.0mm and more. In this way, the oblique cracks became critical cracks and the failure of the beams occurred.

At loads (0.5-0.7) K_{ult} , the opening width of oblique cracks in the beams was in the range of 0.2-0.5 mm [16-18].

Conclusions:

Normal cracks in BKPA-1.2 sample beams $a=42$ cm ($a/h=1.95$) at bending moments equal to 6.8-7kN, normal cracks in BKPA-3.4 sample beams 7.6-7 At bending moments equal to .9 kN, normal cracks were formed in BKPA-5.6 sample beams at bending moments equal to 11-11.2 kN. In this case, the ratio of the crack forming moment to the breaking moment was $(M_{cr}^t)/(M_{ult}^t)=0.220$.

The ratio of the experimental value of the cracking moments to the calculated value of the BKPA-1,2,3,4 sample beams, the ratio of the experimental and calculated cracking moments is 1.445 and 1.458, the experimental and calculated cracking moments of the BKPA-5,6 sample beams the ratio was 2.022 and 2.004.

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**ISSUES OF RATIONAL USE OF WASTE IN THE PRODUCTION OF BUILDING MATERIALS**

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Abstract

This article presents an analysis of the ways of using glass production waste in the production of concrete with an assessment of the possibility of using glass-grinding clay. The use of modern technological approaches in the molding of products can significantly improve the quality of concrete and increase its conservation of natural resources, the use of waste and glass is to produce concrete with improved properties by adding waste to concrete.

Keywords: glass waste, superabsorbent, cement, energy efficiency, concrete production.

Introduction

Currently, the construction practice is characterized by the increased use of a new generation of high-tech concrete, among which there are dense high-strength modified concrete. Of particular importance is the R & D, which reveals new opportunities for the use of waste in the creation of building materials on their basis in the conditions of the cost of natural raw materials.

The development of the direction of use of man-made raw materials and household waste in the production of high-strength modified concrete is promising and innovative. The most important direction in the economy of funds in construction is the widespread use of sources of material for secondary processing. In the development of the economy of the Republic of Uzbekistan, it is important to introduce into practice the composition of concrete, which has a new constructive solution, which is economically efficient, based on theoretical and practical research, in raising its material and technical base. In the process of glass production, various types of waste are formed, a large part of which is waste with glass components. It is possible to reduce the amount of this waste by improving the technological processes of glass production, as well as attracting waste into economic circulation as secondary material resources. Currently, the glass industry mainly reuses pure waste.

The purpose of the work is to analyze the directions for the use of glass production waste with an assessment of the possibility of using glass grinding clay in the production of concrete .



As an object of research, we used a glass grinder formed in glass production enterprises. This type of waste is formed after grinding and polishing the glass blank. After these operations are completed, the surface of the glass blank is washed with water and the glass clay consisting of the resulting small glass particles and a mixture of water is fed into a sink to sink the suspended particles. Every year a typical glass making plant produces about 600 tons of glass grinding clay per year.

Due to the rapid development of the construction industry, the demand for concrete and reinforced concrete structures made using portlandement is increasing. In this respect, in the production of concrete and reinforced concrete structures, one of the priorities of the building materials production industry, there is a great emphasis on the use of existing local raw materials and industrial waste, moderating production technologies, improving the quality of the product produced, reducing its cost. In addition to optimizing the composition of concrete mixtures used for the production of concrete and reinforced concrete structures, there are many R & D works aimed at the use of industrial waste, chemical and mineral additives in their preparation, targeted management of the formation of a structure in hardened cement stone. In this regard, it is important to use chemical and mineral additives in order to increase the resistance of concrete and reinforced concrete structures to the harmful effects of the environment, especially groundwater, ensure the comfortable fit of the concrete mixture, accelerate the initial strength of concrete by intensifying its hydration, and ensure high strength, and at the same time improve the strength of.

The main part: decree of the president of the Republic of Uzbekistan No. PF-60 of January 28, 2022, PQ-4335 of May 23, 2019 “on additional measures for the rapid development of the building materials industry” and also the implementation of the tasks provided for by other regulatory legal acts adopted in this area, the results of this study serve to a certain extent[1-4].

Today, due to the rapid development of the construction industry, the demand for concrete and reinforced concrete structures made using portlandement is increasing. In this respect, in the production of concrete and reinforced concrete structures, one of the priorities of the building materials production industry, there is a great emphasis on the use of existing local raw materials and industrial waste, moderating production technologies, improving the quality of the product produced, reducing its cost.

Particular attention is paid to the introduction of resource and energy-efficient technologies and the creation of corrosion-resistant concrete types in our republic, which allow the development of the building materials industry, the economy of natural raw materials and the use of industrial waste in production. In the implementation of these tasks, the provision of the construction process with quality materials and structures, especially concrete and reinforced concrete structures resistant to the aggressive effects of groundwater, using local raw materials and industrial waste, and the creation of structures and technologies for the production of quality structures and objects of concrete mixtures is one of the urgent tasks.



Results of the study:

when comparing the composition of glass grinding clay and waste, it was found that the composition of this type of glass production waste is almost the same. In this regard, it can be assumed that the main use of glass grinding Clay may be similar to the methods of working with waste, since the analysis of documents made it possible to determine the main directions of the use of glass waste.

The quality of concrete largely depends on the materials from which it is made. The correct choice of materials for concrete, that is, the requirement for concrete, taking into account the properties of the materials themselves, occupies a high place in concrete technology. In this case, the maximum economy of cement and labor consumption is achieved in the production of concrete. Inorganic binders are widely used to make concrete of construction structures. These substances, when mixed with water, gradually solidify from the soft hamir state under the influence of internal physico-chemical processes, go beyond their strength and turn into a stone-like solid state. Inorganic binders are found in water (Cements) and air (lime, gypsum, etc.) hardens. The most commonly used in concrete production is portlandsement.

By injecting 0.01-1.2 percent of the cement mass into the concrete, as well as 15-40 percent of the surface activated dispersing materials, such as Quartz minerals, can improve properties and save cement. Classification of concrete binder by type: cement, silicate, gypsum, mixed Binder and so on. In relation to the type of filler: dense, porous, with a special filler. Special fillers include flame retardant, chemically resistant, radiation beam repellent, and so on[1-8].

In the preparation of concrete, portland cement and its types, slaked, pussolan, gilt-coated and other types of cement are used. The brand of cement is determined in the following proportion to the brand of concrete:

Table 1.1 The ratio of cement to the brand of concrete

Brand of concrete	B150	B200	B250	B300	B350	B400	B 450	B 500	B 600 and high
Cement brand	B 300	B 300 B 400	B 400	B 400 B 500	B 400 B 500	B 550 B 600	B 550 B 600	B 600	B 600

When the cement mark is higher than recommended for a particular concrete mark, crushed active minerals must be added to the cement content. High-activity cements such as diatomite, trepel, opoka, gliège are saved by adding natural, domna and fuel slag, ash, and the like to cement. The density, strength, frost resistance of concrete directly depend on the granular composition of a large filler.

In the process of glass production, various types of waste are formed, a large part of which is waste with glass components. It is possible to reduce the amount of this waste by improving the technological processes of glass production, as well as attracting waste into economic circulation as secondary material resources. Chemical additives can accelerate the hardening of concrete under normal conditions and during heat treatment, provide frost resistance, water resistance, durability and corrosion resistance. Their rational use can



change the technology of transportation and placement of concrete mixture, make this process mechanized and less labor-intensive, significantly reduce the time of obtaining technological or tempering strength of concrete, and, as a result, Shorten and eventually increase the construction time.



Figure 1. Efficiency of the technological line.



Figure 2. Types of cubes with the addition of chemical additives

Chemical additives make it possible to purposefully carry out the technological process of manufacturing reinforced concrete structures for certain operating conditions with the necessary Frost, water resistance and durability.

Currently, the glass industry mainly reuses pure waste. Other waste (including grinding mud, waste with metal additives, contaminated waste, fiberglass Waste, Etc.) is not used and must be stored or disposed of. Glass grinding in the production of production waste concrete is the analysis of the directions of its use with an assessment of the possibility of using clay[1-10]. We used a glass grinder formed in glass production enterprises. This type of waste is formed after grinding and polishing the glass blank. After these operations are completed, the surface of the glass blank is washed with water and the glass clay consisting of the resulting small glass particles and a mixture of water is fed into a sink to sink the suspended particles . Every year a typical glass making plant produces about 600 tons of glass grinding clay per year.

Due to the rapid development of the construction industry, the demand for concrete and reinforced concrete structures made using portlandcement is increasing. In this respect, in the production of concrete and reinforced concrete structures, one of the priorities of the building materials production industry, there is a great emphasis on the use of existing local raw materials and industrial waste, moderating production technologies, improving the quality of the product produced, reducing its cost. In addition to optimizing the composition of concrete mixtures used for the production of concrete and reinforced concrete structures, there are many R & D works aimed at the use of industrial waste, chemical and mineral additives in their preparation, targeted management of the formation of a structure in hardened cement stone. In this regard, it is important to use chemical and mineral additives



in order to increase the resistance of concrete and reinforced concrete structures to the harmful effects of the environment, especially groundwater, ensure the comfortable fit of the concrete mixture, accelerate the initial strength of concrete by intensifying its hydration, and ensure high strength, and at the same time improve the strength of Particular attention is paid to the introduction of resource and energy-efficient technologies and the creation of resistant types of concrete in our republic, which allow the development of the building materials industry, the economy of natural raw materials and the use of industrial waste in production.

The construction sector forms the most important component of the Territorial Infrastructure of our country, ensuring that housing and settlements are cozy and comfortable in all respects. The level of development and efficiency of activity of this sphere form a corresponding quality of life of the population, reflect the standard of living and lifestyle, serve as one of the factors for further raising economic potential[1-10].

Conclusion

In conclusion, such tasks as high-quality production of traditional building materials on a scientific basis, adaptation of the technologies for their creation to the requirements of the time, development of inexpensive, economical, high-quality objects and technologies, obtaining new and thorough materials, creating their cost-effective technologies, perfecting the methods of repair and reconstruction of buildings and structures, as well as

The mechanism of pore formation in glass waste concrete fillers is an important problem that attracts the attention of many researchers and engineers in the field of materials science and production technology. Glass waste fillers such as absorbent polymer material are used in various industries such as construction, automotive, furniture, etc. These materials have a number of advantages over other fillers, which are: weight, good heat holder, noise barrier, moisture and chemical resistance.

One of the main requirements for glass waste concrete fillers is the presence of holes in their structure, which provide air permeability, gas permeability and moisture permeability properties. The porous structure of fillers ensures good dispersion of gases and liquids, which is an important factor in achieving the desired properties of fillers.

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**THE ROLE OF BINDERS AND FILLERS IN THE STUDY OF CONCRETE PROPERTIES**

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Abstract

This article is an analysis of the directions of use with an assessment of the possibility of using glass grinding clay in the production of concrete. The use of modern technological approaches in the formation of products to significantly improve the quality of concrete and increase its properties. It consists of the preservation of Natural Resources, the use of waste materials and the production of concrete with improved properties by adding glass waste to concrete.

Keywords: glass waste, superabsorbent, cement, energy efficient, concrete production.

Introduction

Due to the rapid development of the construction industry, the demand for concrete and reinforced concrete structures made using portlandcement is increasing. In this respect, in the production of concrete and reinforced concrete structures, one of the priorities of the building materials production industry, there is a great emphasis on the use of existing local raw materials and industrial waste, moderating production technologies, improving the quality of the product produced, reducing its cost. In addition to optimizing the composition of concrete mixtures used for the production of concrete and reinforced concrete structures, there are many R & D works aimed at the use of industrial waste, chemical and mineral additives in their preparation, targeted management of the formation of a structure in hardened cement stone. In this regard, it is important to use chemical and mineral additives in order to increase the resistance of concrete and reinforced concrete structures to the harmful effects of the environment, especially groundwater, ensure the comfortable fit of the concrete mixture, accelerate the initial strength of concrete by intensifying its hydration, and ensure high strength, and at the same time improve the strength of.

Main Part:

A positive effect similar to reducing drying shrinkage (by 12.6%) and autogenic shrinkage (by 15.5%) is described using self-leveling mortar as an example. In this case, the effect that



forms the process of shrinkage and hardening is significantly manifested in the period of 28 days.

Determination of the effectiveness of the use of SA to reduce the plastic shrinkage of cement materials according to a study of scientists studied the effect of various dispersion additives (fractions of 0-200 μm and 200-500 μm) under different heat and humidity. working conditions. The thinness of the reduction of horizontal deformations was 20 and 17%, respectively, for compositions of less than 200 μm and 200...500 μm .

SA efficiency of 0.3% by weight of Portland Cement has also been shown to reduce autogenic shrinkage of concrete. In addition, the degree of impact depends on the water/sem ratio: the smaller the initial amount of water, the smaller the shrinkage reduction effect.

The use of SA is associated with a number of difficulties. For example, sa polymer granules require adjustment of water consumption in mixtures to maintain mobility. According to it, the dispersion diameter of mixtures containing irregularly shaped SA microparticles decreases from 210 to 170 mm. in it, the mobility of the concrete mixture remained the same, since the water absorbed by the SA actually contributed to an increase in the water-cement ratio by 6.7-20%. According to the data, the increase in the amount of superabsorbent polymers contained in cement mortar is accompanied by a decrease in bending and pressure by 20.5 and 25.8%, respectively. This is explained by the change in porosity, which is additionally formed after the desorption of SA.

Based on the results of the study, analyzing the effect of SA on the mechanical properties of concrete for 28 days, they conclude that there is a clear negative effect: the decrease in pressure strength when hardened IS from 8 to 35%. in conditions with high humidity and up to 28% - with low humidity. At the same time, the opposite results (a decrease in pressure strength by 10-13% at the same time with an increase in bending strength by 7% from a decrease in bending strength by 33%, were indicated by samples hardened under hermetic influence.

Thus, the use of superabsorbent polymers in cement composites is characterized by positive and negative effects.

On the one hand, the use of SA as a water carrier to ensure the hydration of the binder is justified by the positive effect of reducing shrinkage. On the other hand, the granulated polymer component not only requires pre-saturation (up to 30 minutes), but also serves as a source of additional holes in the composite structure, in order to ensure sufficient mobility of the mixture, which complicates the technology of concrete production. promotes a decrease in mechanical properties. At the same time, desorption kinetics are crucial to improving the efficiency of SA, in which sufficient water migration is carried out on the contrary, not on the cement stone arising from the reserve fund of polyacrylates. The factors affecting these processes are the properties of the polymer's cross-linking, the shape and size of its granules, and the properties of the pore-forming. Concrete properties, for the control of Mixtures and in the economy of cement, various additives are mixed into the concrete, dividing them into two groups.



In Group 1-chemicals, a small amount (0.1-2% cement mass) is added to the concrete composition to change the concrete mixture and the nature of the concrete to the desired side.



Figure 1. Tiny additional materials

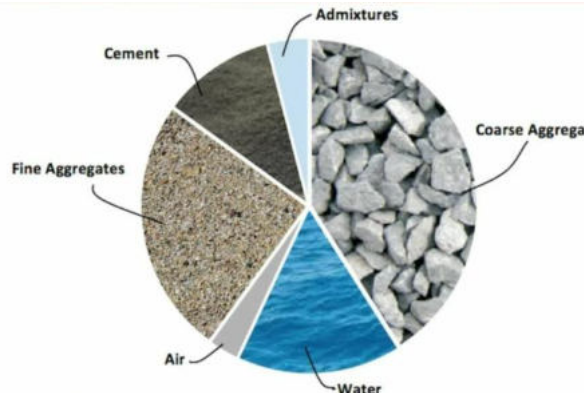


Figure 2. Additives regulating the properties of the concrete mix:

Group 2-finely ground materials are added to the composition of concrete in an amount of 5-20%, and in order to save cement, or to obtain a fairly dense concrete, spending a small amount of cement. Fine-milled additives include Ash, milled slag, sand, rock grinding waste and other materials, which give concrete maxhsus properties (increasing density, heat-resistant, changing current permeability, staining, etc. At the last time, more and more chemical additives are used.

Additives that regulate the properties of the concrete mixture:

1. Additives that regulate the properties of the concrete mixture are: plasticizer, that is, one that increases the hardness of the concrete mixture; stabilizer, that is, one that prevents the folding of the concrete mixture; water preservative, one that reduces water separation;
2. The teething of the concrete mixture, and the joints that regulate the hardening of the concrete; the teething accelerator, the teething retardant, the hardening accelerator, the anti-Cold (anti-Cold);
3. Concrete mixture and additives that regulate the density and porosity of concrete: air-absorbing, gas-forming, foam-forming, compacting (air-releasing and concrete porosity-dressing), regulating concrete deformation, expansion additives;
4. Additives that give concrete special properties: hydrophobizing, that is, reducing the moisture content of concrete; anti-corrosion, that is, increasing resistance to aggressive environments, inhibitors of steel corrosion, increasing the property of preserving concrete in relation to steel; dyeing; enhancing the bactericidal and insecticidal property.

Table 1. Physical and mechanical properties of sand

№	Mass density, kg / m ³	Exact density, kg/m ³	Space size, %	Content, %	
				dust and clay particles	Organic mixtures
1	1343	2630	48,9	0,5	-

**Table 2 Features of glass waste additive**

Index names	Indicator value
Density, kg / m ³	1100
ph	7
Polymerization Rate, min	0.25 to 45
Binding force, MPa	0,2
Stretch stretch, %	300
Application temperature, °C	0 to 40
Biological stability	stable
Vapor permeability	Conditionally vapor permeable

The analysis of the structure of glass waste and methods for studying complementary substances on their basis is the subject of dissertation work. The availability of the necessary equipment, the relative simplicity of the research stages and the high reliability of the final results determined the selected methods of experimental research of this work.

For the preparation of samples:

- * cube molds with geometric dimensions 10x10x10 CM;
- * rotating granulator.

To determine the strength characteristics of the composite mixture, each sample is designed according to the requirements. For this, a technique based on the following steps was used: first water and superabsorption were added to the mixer, then Portlandement. All components were mixed in a mixer at a slow speed for 5 minutes until smooth. After that, sand was added to the mixture, and all components were mixed at medium speed for another 3 minutes.

After mixing, the mixture was placed in molds measuring 10 cm × 10 cm × 10 cm, then placed on the vibration for 1 minute to get rid of air bubbles.

The samples were hardened under normal conditions: in accordance with gost 18105-2018 "concretions in the CU-40b normal hardening chamber. Power control and evaluation rules" temperature for a day – 20 °C Vanam – 80...In a normal hardening chamber providing 85% stabilization, it was then deepened, measured, weighed, additionally strengthened and prepared for testing under the same conditions for 27 days.

For some studies, the rotor is shaped by the method of forming using a granulator device, which is used in the formwork. Ingredients were added to the granulation device according to the specific proportions in which the required rotor speed was set. During the forming process, the mixture affected the centrifugal force caused by the rotation of the granulator rotor, resulting in round granules 3 to 8 cm in diameter. After the formation process is complete, the granules are removed from the granulator and left to dry and ripen for 28 days. The frost resistance of the samples was determined by the standard method. Before testing began, samples measuring 100x100x100 mm were stored under normal conditions (temperature 20°C, relative humidity 60%) for 28 days to achieve maximum power. Each freezing and thawing period lasted 24 hours and had a freezing period at -18°C and a thawing period at +2°C. A total of 10 freezing and thaw cycles were conducted.



Research Results:

In the formulas and tables that can be determined to calculate the composition of concrete, the uniformity of fillers, the presence of rocks with different strength in them, was not taken into account. For this reason, after calculating the composition of concrete, the experimenter conditions, having prepared a solution, its brand will be checked.

If the strength of the sample after 28 days satisfies the project requirement, then this composition of concreting is recommended for construction. The properties of the materials used in the calculation of the composition of concrete are determined in the dry state in the experiment.

If it is necessary to add joints to the concrete, then the joint is bent to match the degree of grinding of the cement and mixed into the mixture before watering. The consistency, which is suitable for concrete, is determined in the experiment. There are many methods for calculating the composition of concrete. When choosing these methods, great attention is paid to the cement consumption for 1m³beton, its strength and durability. Within these, the most economical method is selected.

B.G. The method of absolute volumes, developed as a result of deep inspections of skramtaev, is the most convenient and accurate method for calculating the composition of concrete.

Calculation of the composition of concrete 1m³ from the determination of the masses of cement (TS), water(S), sand (K,) and large fillers (SH) spent on concrete. The composition of the concrete being selected is assumed to be absolutely dense, and the volume of its contents is determined in the absolute state. Then calculated, based on the product, a mixture is prepared, and its degree of thickness is checked for the placeability of the vaqlay.

The water Cement (S/TS) ratio corresponding to the concrete brand is prof.B.G. It is determined using the formula proposed by Skramtaev.

$$S / TS = A1/Rts(Rb-0.5/A1/Ru$$

in this: RB-The strength of concrete after 28 days; RTS - the brand of portlandsement; A and A1-depend on the quality of the fillers, which have coefficients, A=0.65 for a high-quality filler, a=0.6 for ordinary fillers.

Consequently, once the S/TS ratio is determined, the amount of water is found by putting the formula $vaTS=s/(s / TS)$ to determine the amount of cement.

For the preparation of a convenient concreting concrete mixture, a mixture of cement, sand between large fillers should be sufficient.

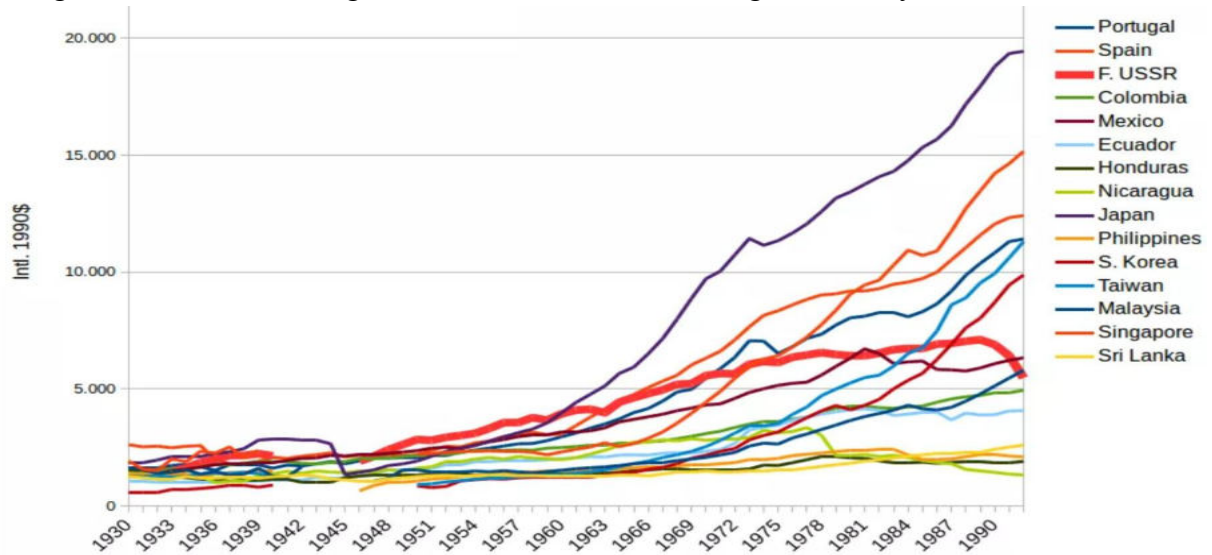
Features of complex chemical additives in a concrete mixture:

In recent years, research into the use of high-performance plasticizers called superplasticizers (SP) has been of great interest. These substances differ from ordinary, conventional plasticizers in their high plasticizing effect

The first superplasticizers appeared in the early 70s of the last century as a result of research by Japanese and German specialists in the field of concrete research and design. The main idea of using these additives was to obtain molded concrete mixtures without mechanical effects. The main advantage of superplastifiers is that despite the strong dilution effect, they



do not reduce the strength of the concrete, and therefore their use in larger doses compared to conventional plasticizers allows for a higher plasticization effect. The use of superplasticizers and complexes based on them made it possible to significantly increase the average and maximum strength of concrete, while increasing the activity of cements.



From the beginning of the XX century 1930y.until 1940y. 1950-1960y. 1970-1990y. 2000-2020y.

Figure 2. Dynamics of the maximum increase in concrete strength by the years of the 20th century

Today, superplasticizers are synthesized and extracted from organic compounds. Using them in optimal quantities allows you to obtain bulk or super-mobile mixtures from dark concrete mixtures ($KCh = 2-4$ cm), without reducing the strength. ($OK = 18-24$ CM).

According to its chemical composition, all superplasticizers (SP) can be divided into four groups:

- the first group includes SP, which is obtained on the basis of sulfate melaminformaldehyde Tar (SPMF) ;
- the second group includes additives based on naphthalene sulfonic acid and polycondensation products of formaldehyde (SP NF);
- the third group includes polycarboxylate and polyacrylates (SP P) - based additives;
- the fourth group includes modified lignosulfonates (SP LST).

From previously used plasticizing additives, modern superplasticizers differ in the fact that their chemical composition does not change and the technical requirements of the products in the corresponding technical specifications are strictly followed.

The mechanism of action of superplasticizers in species NF, MF, LST is dominated by electrostatic repulsion and stabilization of cement particles. In this, the adsorption layers of SP molecules increase the value of the potential on the surface of the cement particles. The value of the Z-potential depends on the adsorption capacity of SP, in addition the higher the adsorption value, the larger the absolute value of the manfmy-charged ζ -potential.



The role of ζ -potential is less in the P-type SPs mechanism of action, while the mutual push and suspension stabilization of cement particles is provided by a dominant steric effect.

Most experts associate this difference with the structure of SP molecules: NF, MF, LSTs are characterized by the linear shape of the polymer chain; for SPs of type P, transverse bonds of two or three-dimensional shape are characteristic. Forming an adsorption volumetric protective shell around solid phase particles, it prevents the particles from sticking together and forms crosslinks that promote their mutual push. It is the transverse zveno that forms an adsorption volumetric protective shell around solid phase particles and promotes the non-overlapping and cross-pushing of particles.

Some studies have cited data that the mutual push forces of P-type SPs are almost twice as large as those of MF and NFS, and three times as large as LST.

In the literature, this group of SP called "hyperplasticizers". They differ from traditional superplasticizers in having a higher water demand reduction property (30% or higher) compared to ordinary SPs, A Higher plasticization property even at a lower water-cement ratio (0.2 for cement dough), and low utilization (~0.2%).

Conclusion:

In conclusion, such tasks as high-quality production of traditional building materials on a scientific basis, adaptation of the technologies for their creation to the requirements of the time, development of inexpensive, economical, high-quality objects and technologies, obtaining new and thorough materials, creating their cost-effective technologies, perfecting the methods of repair and reconstruction of buildings and structures, as well as

The mechanism of pore formation in glass waste concrete fillers is an important problem that attracts the attention of many researchers and engineers in the field of materials science and production technology. Glass waste fillers such as absorbent polymer material are used in various industries such as construction, automotive, furniture, etc. These materials have a number of advantages over other fillers, which are: weight, good heat holder, noise barrier, moisture and chemical resistance.

One of the main requirements for glass waste concrete fillers is the presence of holes in their structure, which provide air permeability, gas permeability and moisture permeability properties. The porous structure of fillers ensures good dispersion of gases and liquids, which is an important factor in achieving the desired properties of fillers.

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DETERMINATION OF DISPLACEMENT OF FIVE-STOUREY BUILDING UNDER ACTION OF SEISMIC FORCES

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Abstract

In this article, seismic forces affecting a five-story building were incorrectly distributed, as a result of incorrect placement, displacements were detected in the building. design works were performed in accordance with the current standard. general information about the construction site, geometric indicators of the building, dynamic characteristics of the building, strength and mechanical indicators of construction materials were taken from the location of the building and analyzed.

Keywords. Seismic forces, geometric indicators, dynamic forces, stability, earthquake, dynamic characteristics.

Introduction

When calculating the effect of seismic forces, the following were taken into account: general information of the construction area; geometric indicators of the building; General information of the building according to the regulatory document building regulations 2.01.03-19 "Construction in seismic areas"; dynamic characteristics of the building, strength and mechanical indicators of construction materials; consolidation of loads; statement and analysis of calculation results; conclusions and recommendations.

The general appearance of the building is rectangular in plan, the main walls are columns of baked brick, and the beams are restored from cast-iron and concrete structures. Five floors of a commercial consumer services building and a residential building are separated by an antiseismic seam, the planned dimensions of which are 30.0x12.0 m. The total height of the building is 19.9 m (5 floors of the attic). The distance from the floor level to the ceiling of the building is 3.0 m.

1. General information about the building and the construction area

1. Structural system of the building: 4-story building.
- 2 Construction indicators of the area:
 - 2.1. Seismicity of construction site - 7 points (BR 2.01.03-19, Appendix 2);
 - 2.2. Normative snow load: II - region $s_0 = 0.7$ kPa (70 kgs/m²) (BR 2.01.07-96, Appendix 5).
 - 2.3. Normative pressure of wind speed: II - district $W_0=0.38$ kPa (38 kgs/m²) (BR 2.01.07 96),



3. The indicators of the building according to the regulatory document:
 - 3.1. The building's responsibility class is I (first);
 - 3.2. Reliability coefficient by appointment: $\gamma_n=15$ (BR 2.01.07-96, Appendix 7).
 - 3.3. Category of responsibility of the building - III (third);
 - 3.4. Coefficient of responsibility: $K_o= 1.2$ (BR 2.01.03-19, table 2.3);

2. Geometric indicators of the building

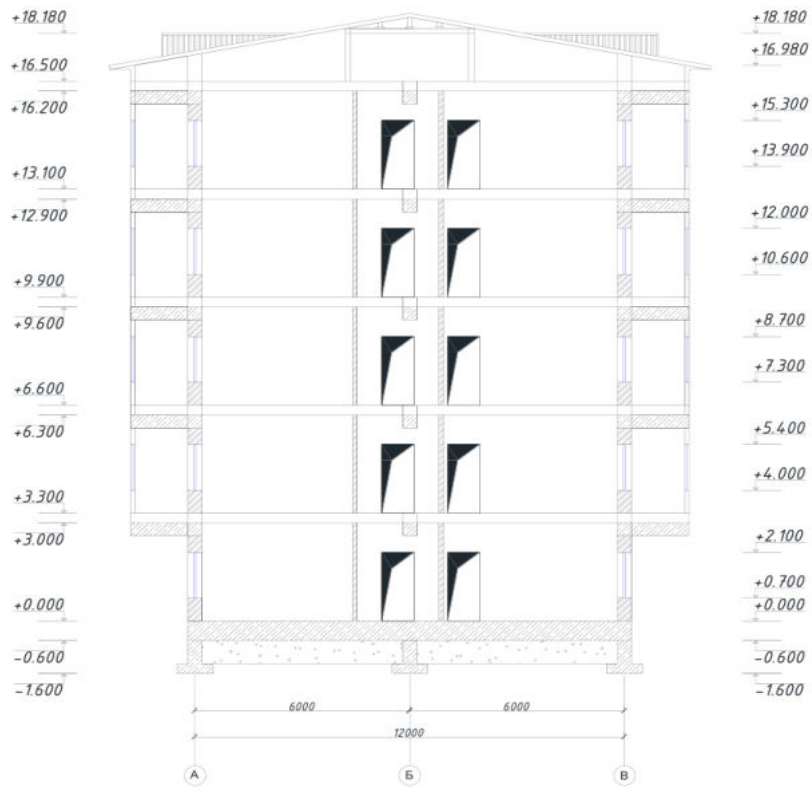


Figure 1.1. 1-1 section of the building.

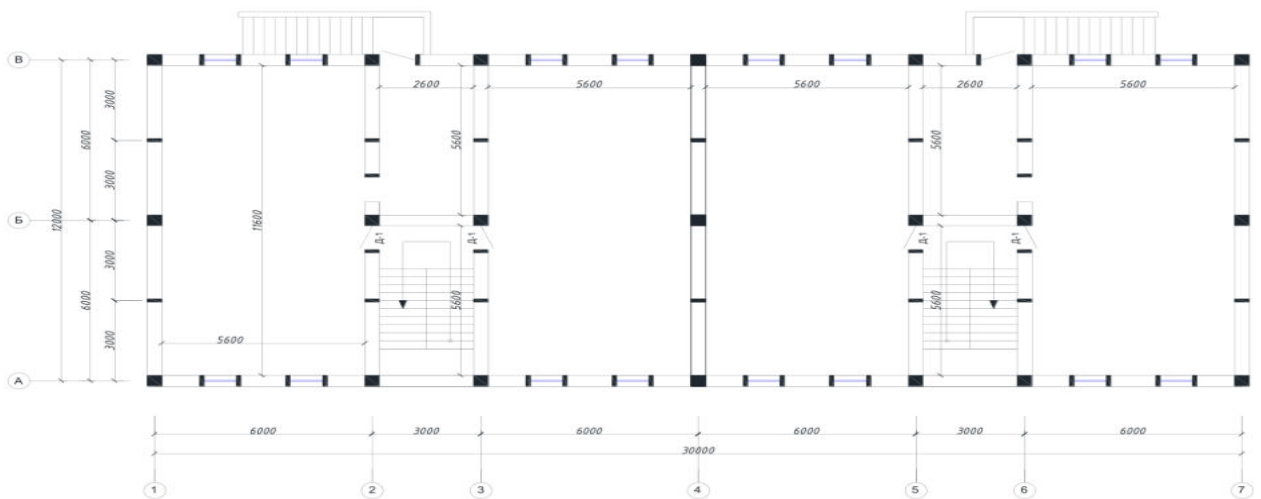


Figure 1.2. 1st floor wall plan.

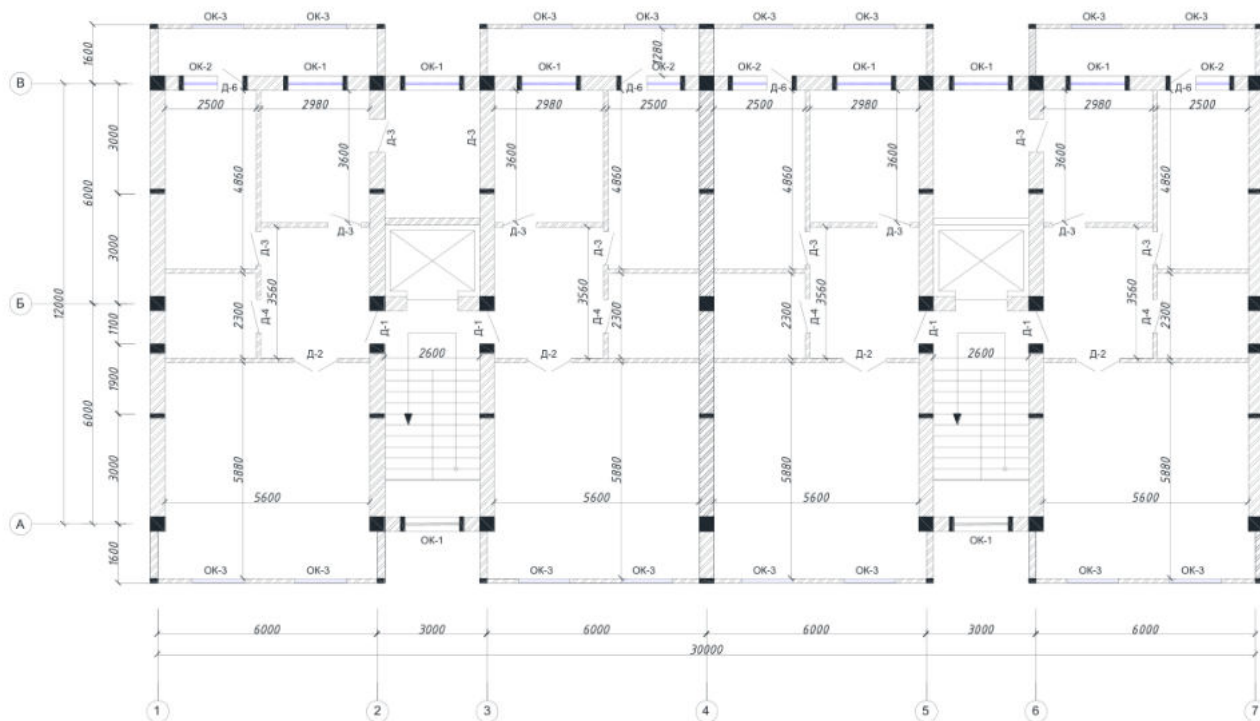


Figure 1.3. Floor 2-4 wall plan.

3. General information of the building according to the normative document BR 2.01.03-19 “Construction in seismic areas”

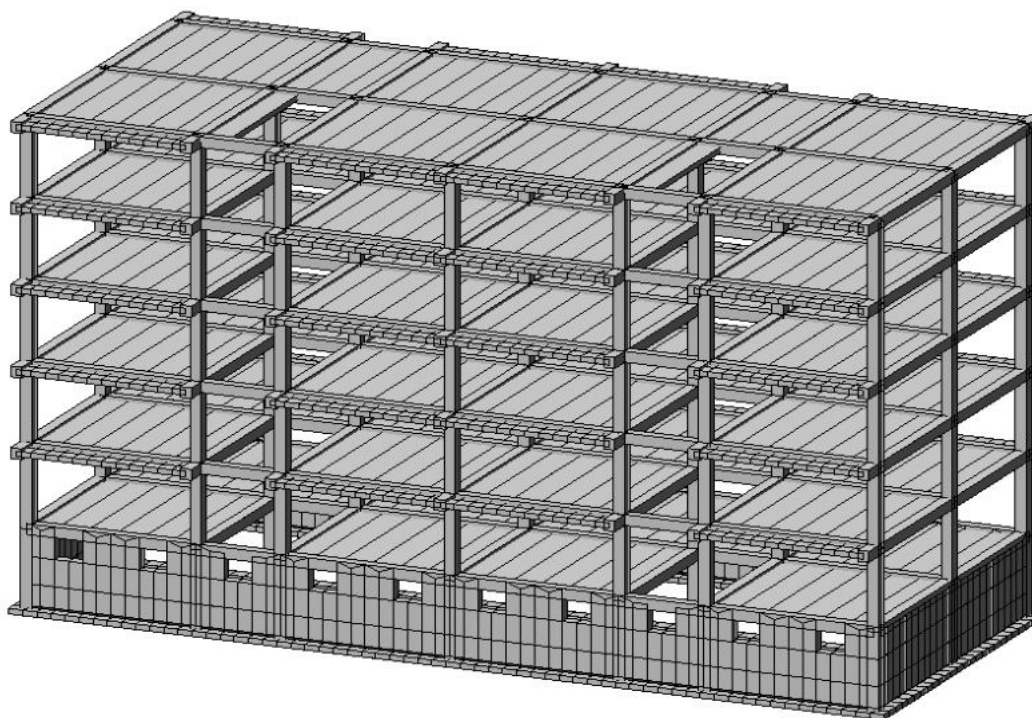
Calculation of the impact of seismic forces of the building was carried out using the LIRA 9.6 program complex. According to BR 2.01.03-19, the normative indicators of the building are presented in Table 3.3 below. Table 1.1. Normative indicators of the building.

Naming of calculation indicators	Coefficient
1. Counting number of vibration forms	10
2. Matrix of mass	Diagonal
3. Coefficient correcting seismic forces	1,0
4. Responsibility coefficient of the facility, (BR 2.01.03-19, 2.3 - table)	1,2
5. Coefficient that takes into account the frequency of earthquakes (BR 2.01.03-19, Table 2.4)	1,25
6. Coefficient that takes into account the number of floors of the building (BR 2.01.03-19, 2.10 - table 2.10)	1,5
7. Regularity coefficient, p.2.25 (BR 2.01.03-2019, 2.12 - table)	1,0
8. Coefficient that takes into account the seismicity of the area, (BR 2.01.03-19, Table 2.7)	1.0
9. Address index, (BR 2.01.03-19, table 2.2)	II
10. Ground category, 1.1. table (BR 2.01.03-19,1.1 - table)	II
11. Decrement of oscillations, (BR 2.01.03-19, table 2.9)	0,3



4. Durability and mechanical indicators of construction materials

The following mechanical indicators were obtained for concrete structures: $E = 300000 \text{ kgs/cm}^2$, Poisson's coefficient $\mu=0.2$, betonning solishtirma og'irligi $\gamma=2500 \text{ kgs/m}^3$.



Building a spatial 3D computational model

5. Consolidation of Loads

A total of 6 loadings were adopted in summing up the external effects, two of which consist of seismic impact forces in the transverse X and longitudinal Y directions.

The calculation of the building is based on the effects of special loads.

Loading 1. Permanent load (the specific weight of the building, $g_f=1.1$ is accepted with a reliability factor).

Loading 2. Constant load, multi-cavity slab, cladding, insulation, heat-retaining layer, floor, curtain wall, profiled and integral procons (see table 1.2).

Loading 3. Long-term load - useful load (the weight of people and equipment, $\gamma_f = 1$, accepted with a reliability coefficient according to BR 2.01.07-96, clauses 3.10-3.11).

Load 4. Short-term load - snow (paragraph 5.7 of BR 2.01.07-96 according to reliability coefficient $\gamma_f=1.4$).

Loading 5 and 6. Seismic effects in the corresponding X and Y directions Tashkent city - 8 points.

A summary of the loads is given in Table 1.2 below.



1.2 - table. Aggregation of loads.

№	Naming of loads	Unit of measure	Normative value	Working conditions coeff.	Computational value
1	2	3	4	5	6
1.	The specific weight of the building is accepted with a reliability factor of $\gamma_f = 1.1$				
2.	Permanent loads applied to the coating				
2.1.	Wavy asbestos slate 1750×1130x5.2	kgs/m ²	10,42	1,05	10,94
2.2.	6 m and 3 m integrated progon	kgs/m	24	1,05	25,2
2.3.	Heat preservation layer - expanded clay t=150 mm; $\gamma=800 \text{ kg/m}^3$	kgs/m ²	120	1,3	156
2.4.	Cement-sand mixture layer t=30 mm; $\gamma=1800 \text{ kg/m}^3$	kgs/m ²	54	1,3	70
2.5.	The thickness of the multi-cavity plate is 220 mm	kgs/m ²	115	1,1	126,5
2.	Constant loads applied to the rolling plate				
2.1	Wooden floor, cross-sectional surface dimensions 0.05x0.2 m.	kgs/m ²	77	1,1	84,7
2.2	The size of the cross-sectional surface of a wooden beam is 0.25x0.3 m.	kgs/m ²	115	1,1	126,5
2.3.	Floor covering (linoleum)	kgs/m ²	10	1,2	12
2.4.	Curtain walls (brick wall)	kgs/m ²	100	1,2	120
3.	Long term				
3.1.	Useful	kgs/m ²	200	1,3	260
4.	A short term				
4.1.	Snow load	kgs/m ²	70	1,4	98

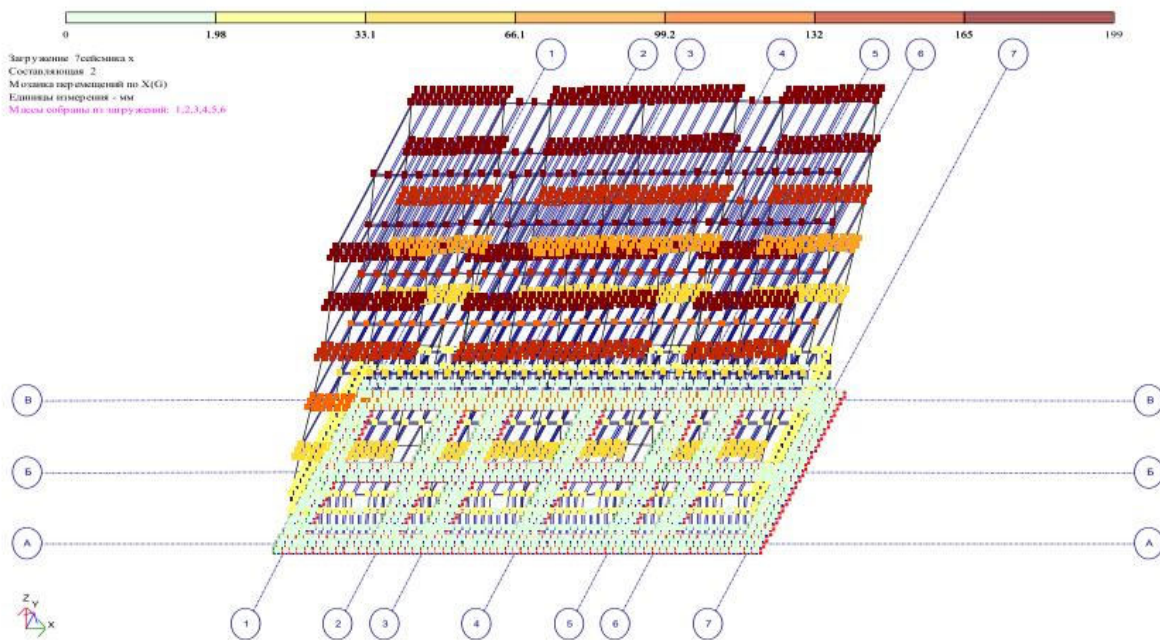


Fig. 1.4 isopoly of equivalent stresses in tension in building structures

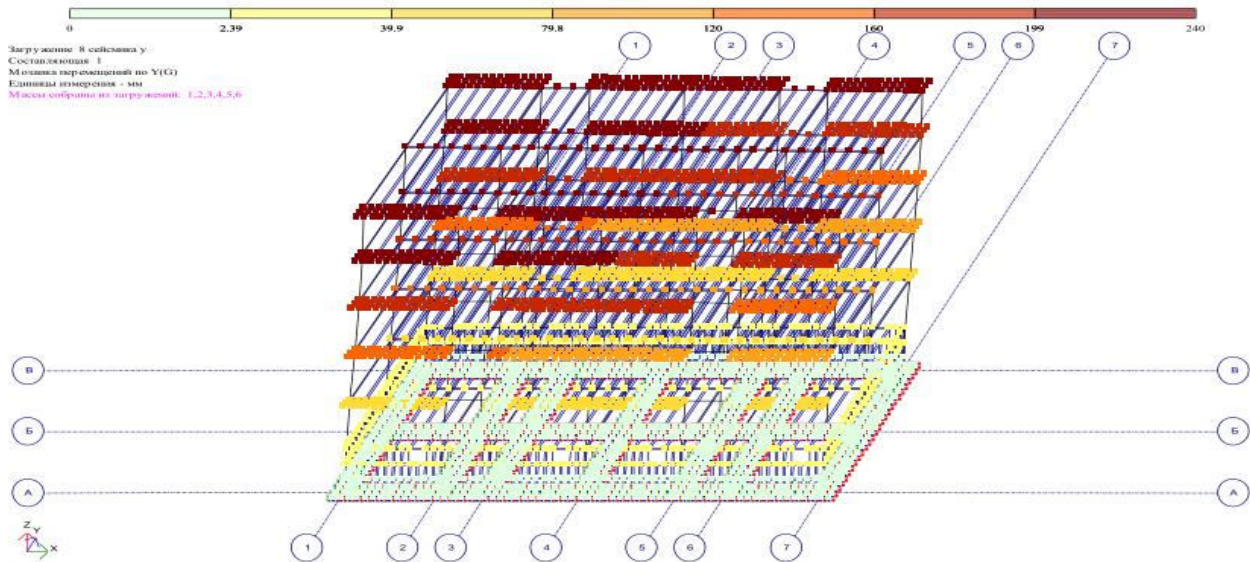


Figure 1.5. Isopoly of displacements of longitudinal walls of the building along the Y axis

Based on the results of calculation of the four-story building under the influence of 8-point seismic forces, the states of deformation and stress of the building, the frequency of specific vibrations of the building, the maximum displacements and stresses of its walls were analyzed.

2. It was found that the characteristic vibration period of the building obtained by theoretical calculation ($T_h=0.23$ sec) is significantly different from the characteristic vibration period ($T_e=0.14$ sec) obtained by recording microseismic vibrations experimentally.

3. There are two reasons for such a difference: firstly, the period of specific vibration is determined by the method of microseismic vibrations through the initial elasticity modulus of the dynamic integrity of the building; secondly - since the partitions of the building are made of wooden beams and do not form a single unified spatial unit, under the influence of 8-point seismic forces, it causes large deformations, especially along the transverse X-axis, as a result of special vibration period will also be large.

6. Conclusion

Based on the results of calculating the effects of eight-point seismic forces, the conditions of deformation and stretching of the building, the frequency of partial vibrations of the building, the maximum displacements and stresses of its walls were analyzed.

The maximum displacement of the building under the action of seismic forces of 8 points along the X axis is $199 \text{ mm} > (1/70)L = 250 \text{ mm}$, i.e. the range 2.12 (Table 2.6), defined in the regulatory document BR 2.01.03-19, meets the requirements for limit values

The building has a maximum displacement of $240 \text{ mm} > (1/70)L = 250 \text{ mm}$ along the U axis with an 8-point seismic force, i.e. the range of 2.12 (Table 2.6), defined in the regulatory document BR 2.01.03-19, meets the requirements for boundary values.



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**CROSS-SECTION STRENGTH OF MIXED REINFORCED CONCRETE STRUCTURES**

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Abstract

This article describes the analysis of the results of the research carried out on the study of the work of composite reinforced elements, which are widely used in the restoration of concrete structures in the buildings and structures currently being built in the Republic of Uzbekistan and in foreign countries. The article includes the types of composite reinforcements, the physical and mechanical properties of composite reinforcements, and practical recommendations on ensuring their strength, uniformity and seam resistance.

Keywords: composite, basalt, concrete, flexibility, strength, messura, polymer.

Introduction

Currently, polymer composite reinforcements are used in road transport infrastructure facilities, in areas where high electromagnetic fields are generated, in the chemical industry, water treatment and purification, land reclamation facilities, in the construction of seaports and pre-port facilities, in urban engineering infrastructure facilities, in mines and metros. It is effectively used in the construction of tunnels, as well as in the construction, repair and reconstruction of load-bearing and barrier structures of buildings and structures.[1]

The use of polymer composite reinforcements instead of steel reinforcements of reinforced concrete structures working in especially corrosive environments is a promising scientific direction.

In the development of the economy of the Republic of Uzbekistan, in the improvement of its material and technical base, it is important to put into practice the elements that have new constructive solutions and are economically effective based on theoretical and experimental research.[2]

In recent years, the President of the Republic of Uzbekistan and the Cabinet of Ministers have been making important decisions to raise the standard of living of the population and improve living conditions. In the implementation of these decisions, it is necessary to create economically inexpensive construction structures with high strength, uniqueness, and their practical application in the construction of production enterprises, residential buildings, and engineering structures, which are necessary for the economy. The issues raised in this direction include the use of composite materials, which are relevant today. The use of composite materials in construction increases the general reliability and technical economic



efficiency of industrial, residential, public buildings and engineering structures in accepting permanent, temporary and earthquake stresses.[1]

The use of flexible elements reinforced with composite reinforcements in industrial, residential, public buildings and engineering structures requires a scientific basis based on a new theory, confirmed by the results of experimental research. Appropriate recommendations and practical solutions should be developed based on scientific research.[3]

Year by year, the volume of construction and improvement works is increasing in the Republic of Uzbekistan. In order to successfully implement the planned large-scale construction works, extensive use of new innovative technologies is required. The introduction of polymer composite reinforcements into the construction practice in the conditions of Uzbekistan requires their research in the conditions of our country. Therefore, conducting research in the direction of reinforcement of concrete structures with polymer composite reinforcements is an urgent problem of social and economic importance.[4]

Decisions of the President of the Republic of Uzbekistan and the Cabinet of Ministers in the field of construction.

Activation and development of new standards of building materials, as well as rules used in the construction industry in the decision of the President of the Republic of Uzbekistan No. PQ-4198 dated February 20, 2019 "On measures for the fundamental improvement and comprehensive development of the construction materials industry" participation in the development of the collection, certification of all types of manufactured building materials and products.[5]

In 2019 - 2025, the following forecast indicators have been set for the expansion of the raw material base of the construction industry based on conducting geological exploration, extraction and processing of local raw materials:[6]

Displaced rocks (basalt) in 2025 293.5 thousand tons (180.4 percent of dynamics compared to 2018); 1,656,000 tons of reinforced concrete products of various sizes and shapes (percentage of dynamics compared to 2018 is 101.8); 3,000 tons of basalt composite reinforcement (272.7 percent of dynamics compared to 2018).

Cumulative indicators of 6 types of prospective projects to be implemented in the construction materials industry in 2019-2021, the organization of the production of composite pipes and materials is 1000.0 tons, the limit of allocated loans is 25.0 million dollars; production of basalt-based materials is set at 2,000 tons, the limit of allocated loans is 15.0 million dollars. [7]

In 2019, 1387 international standards were adopted for the use of new construction materials in constructions, and their support was determined by the decision of the President of the Republic of Uzbekistan dated May 23 PQ-4335 until December 31, 2021. [2]

Based on the new construction materials, the technical standards and economic standards of 21 designs are established.

In the implementation of these decisions, the use of structures and elements with a new constructive solution for the restoration of buildings and structures is of great importance. Precisely, bending structures equipped with composite reinforcements form the basis of



buildings and constructions, (rafter beams, girders, medium-diameter and thin-diameter plates, corner parts of spatial roof coverings, exposed parts of foundation heels, concrete columns with eccentric compression, engineering structures, engineering communication elements and hakozos are among them).[8]

Main part: The density of the composite polymer reinforcement can be defined as the density of the composite material at a volume fraction of 0.5-0.75 of the fibers (the most characteristic ratio in the composite polymer reinforcement) depending on the density of the composite material components (reinforcing fibers and matrix). The density for carbon-plastic reinforcement is 1430-1670 kg/m³, for organic plastic reinforcement is 1300-1450 kg/m³, for fiberglass reinforcement is 1730-2180 kg/m³, for basalt fiber reinforcement is 1900 kg/m³. It is 3.6-6 times smaller than the density of steel reinforcement.[9]

Thermal expansion of composite polymer reinforcement depends on the type of fibers, matrix and their volume ratio. As a rule, composite polymer reinforcement is an orthotropic material, data on the thermal expansion coefficient are presented in Table 1.

Temperature expansion coefficients of composite fittings, α [10] $\cdot 10^{-6}/^{\circ}\text{C}$ – table.

Direction	Steel	Concrete	Basalt plastic	Organic plastic	Glass plastic
Across the stern (longitudinal)	11	7 – 13	8-10	-2.. -6	6 – 10
Cross-section (radial)	11	7 – 13	24-26	60 – 80	21 – 23

To conduct experimental studies, test models-sample beams with a rectangular cross-section were prepared. Ordinary heavy concrete was used for the beams. Portland cement of Turon cement plant in Beshariq district of Fergana region with activity of 42.5 MPa was used as a binder for concrete. As fillers, quartz river sand from Akbarabad quarry, Kuva district, Fergana region, with a fraction of 5-15 mm and a bulk modulus of M2.25 was used. The composition of the concrete was chosen so that its cubic strength would have a compressive strength corresponding to the class B20 and B35. Granite limestone was sieved, washed in a special device and then dried (Table 2).[3]

Table 2. Grain composition of ordinary heavy concrete aggregates.

Filler type	Residue in % by weight on a sieve with a hole size of mm								
	20	15	10	5	1,25	0,63	0,315	0,14	0,07
Granite limestone	2-4	4-6	90-95	92-100	-	-	-	-	-
Quartz sand	-	-	-	-	1-2	4-5	12-15	45-50	90-100

For experimental studies, 2 B20, 2 B30 beams with cross-sectional dimensions of 12x24 cm and length of 174 cm equipped with concrete and composite reinforcements were prepared. The beams were made in wooden molds. The inner surface of the molds was covered with



metal sheets. In 2 test samples made of B20 class concrete, 2Ø14BKA in the tensile area, 2Ø12BKA in the compression area, and Ø6A-I reinforcements were placed in 7.5 cm increments as working reinforcements (Fig. 1). In 2 test samples made of B30 class concrete, 2Ø14BKA was placed in the tensile area as working reinforcement, 2Ø12BKA in the compressive area, Ø6A-I reinforcements were placed as clamps with a step of 7.5 cm (Fig. 1). The composite reinforcements for the tie rods were welded to the longitudinal reinforcements with mild steel wires. Reinforcement wedges were installed and fixed in the formwork at the project site. Beam samples were made from heavy concrete of B20 and B30 class. Together with the sample beams, cubes of 6 and 9 pieces with a size of 10x10x10cm were made from the same concrete at the same time.[4]

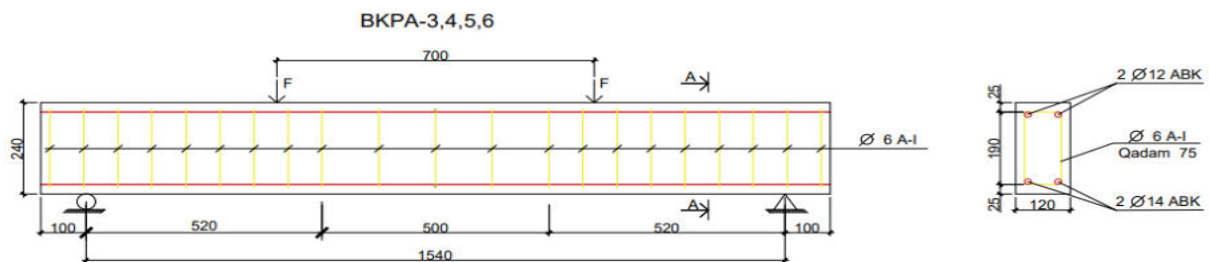


Figure 1. Schemes of reinforcement and loading of sample beams.

Concrete volume equal to 0.25 m³ was prepared in a concrete mixer and poured into molds and compacted using a vibrator.

The beam samples and cubes were kept in the mold for 5-7 days, then they were released from the molds and stored in laboratory conditions until the test. The first cubes were tested 28 days after molding. Then, directly before testing the beams, their cubic strength was determined. After 28 days, according to the results of the compression test of the cubes, it was determined that the concrete of the sample beams corresponds to the B20 compressive strength classes. Tests were conducted on a 50-ton hydraulic press. Cubes were tested until failure. The tests were performed based on the requirements of GOST 10180-2012 according to the standard method. The test results are presented in Table 4.[5]

Reinforcement of sample beams. Table 3.

Sample	Dimensions, cm			Reinforcement			Load range, cm	Design class of concrete
	b	h	h_0	Conda a fittings (clamps)	Longit udinal stretch able	Do not enrich compre ssible		
BKPA -3	12	24	18,5	Ø 6 A-I	2Ø 14 BKA	2Ø 12 BKA	70	B20
BKPA -4	12	24	18,5	Ø 6 A-I	2Ø 14 BKA	2Ø 12 BKA	70	B20
BKPA -5	12	24	18,5	Ø 6 A-I	2Ø 14 BKA	2Ø 12 BKA	70	B30
BKPA -6	12	24	18,5	Ø 6 A-I	2Ø 14 BKA	2Ø 12 BKA	70	B30



Characteristics of concrete used in sample beams. Table 4.

Concrete type	Solidification conditions	Age of concrete, day	R, MPa	R _b , MPa	R _{bt} , MPa	E _b *10 ³ , MPa	ε _{bn}	γ _{bn}	W, %
Normal heavy	In natural conditions	28	25	14,3	1,33	30,1	205	0,82	3,6

The beams were mounted on 2 hinged supports of the stand for testing samples. One of the hinges is fixed and the other is movable. The distance between the forces was 700 mm, and the distance from the supports to the load was 420 mm. The distance from the base to the edge of the beams is 100 mm. The load was delivered using a 24-ton manually operated hydraulic jack. For this, dividing traverses were used.

Before starting the tests, initial measurements were recorded for all fixtures installed on the sample beam. These indicators were accepted as "conditional zero". The download was given slowly in several stages. The step load was approximately 10% of the calculated breaking load. After loading at each stage, its stabilization was waited for up to 20 minutes.[6]

Deformations of concrete and reinforcement, coolness of beams, crack generation time (load) and opening width were measured until samples failed. The value of the load was recorded from the manometer of the jack. After the load reached the specified value, the valve of the jack was closed and kept at this value for 15-20 minutes. After the indicators were recorded through the devices, the load of the next stage was given. In this way, the tests were continued and carried out until the samples were broken[11-19].

Research Results

After the tests, the location of the cracks was determined, the samples were photographed and the height of the cracks was measured, the distances between them were determined, the protective layers of the working fittings were determined and the working height was measured.

During the test, the deformations of concrete and reinforcements, the time of formation of normal and oblique cracks and the amount of load, the stiffness of the beam were measured and recorded.

Deformations are measured on a 300 mm base using a portable measuring instrument with clock-type indicators with an accuracy of 0.01 mm, deflections are measured at three points of the beam - between the spans and supports using clock-type indicators with an accuracy of 0.01 mm was measured. The deformations of the tensile and compressive reinforcements, as well as the concrete compressive zone, were measured at three predetermined points on the cross-section height on a 300 mm base.

During the experiment, the surface of the sample beams was carefully inspected at each stage, and when the first cracks appeared, they were immediately marked and recorded, and their width was measured. At the same time, the value of the load achieved was also determined.

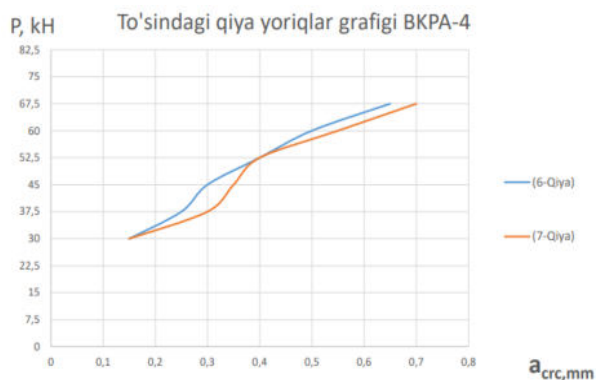
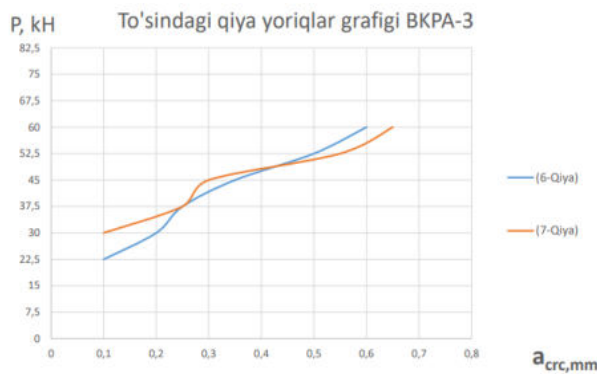


When the BKPA-3,4 sample beams were loaded, at certain stages of loading (II and later) in the area of pure bending, up to 2 or 3 normal cracks first appeared in the beams, and then, as the load increased, new normal cracks formed. The opening width of the initially formed cracks was 0.05-0.09 mm, as the loads increased, normal cracks developed, their tip was observed to rise according to the height of the section, and at the same time, the width of the crack opening also increased.[8]

When the BKPA-5,6 specimen beams were loaded, at certain stages of loading (III and later) in the area of pure bending, up to 2 or 3 normal cracks first appeared in the beams, and then, as the load increased, new normal cracks formed. The opening width of the initially formed cracks was 0.04-0.1 mm, as the loads increased, normal cracks developed, their tip was observed to rise according to the height of the section, and at the same time, the width of the crack opening also increased.

Formation of oblique cracks in sample beams. Table 5.

Sample beam cipher	Shear span (distance from support to force), cm	Transverse force in the formation of oblique cracks, kN		$\frac{Q_{crc}^t}{Q_{crc}^x}$	Q_{ult}^t, kN	$\frac{Q_{crc}^t}{Q_{ult}^t}$
		Experimental Q_{crc}^t	Accounting Q_{crc}^x			
BKPA -3	42	14,5	12,45	1,16	54	0,27
BKPA -4	42	14,9	12,65	1,18	57	0,26
BKPA -5	42	18,2	15,45	1,18	62	0,29
BKPA -6	42	18,9	15,35	1,23	64	0,30



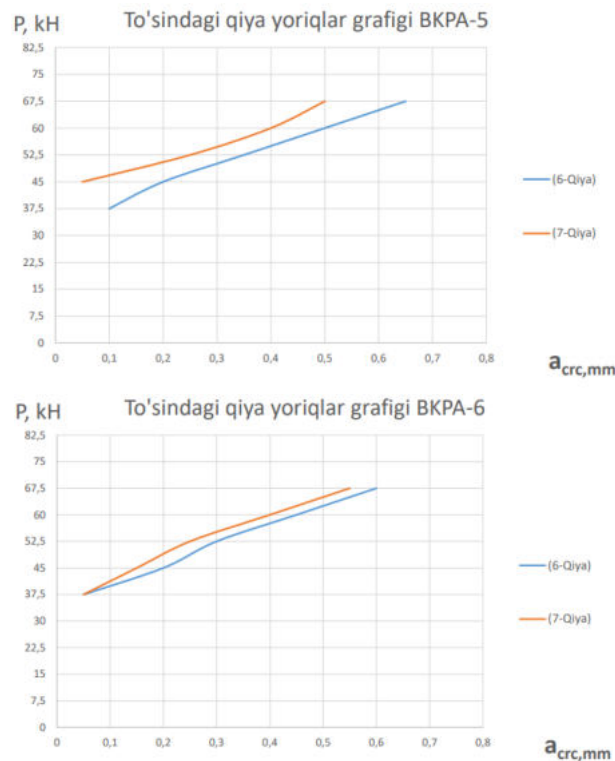


Figure 2. Opening width of oblique cracks in sample beams 3, 4, 5, 6.

Conclusions:

- the load-carrying capacity of single-reinforced flexural concrete elements with basalt-plastic and glass-plastic rods is very close to that of similarly reinforced steel-reinforced elements;
- It is noted that the load-carrying capacity of elements reinforced with composite reinforcements according to the double-reinforcement scheme is lower than the load-carrying capacity of elements reinforced with steel reinforcements according to the same scheme, and this situation is due to the low compressive strength of the composite reinforcement. is explained by;
- It is noted that the crack opening width in flexural concrete elements with basalt-plastic and glass-plastic composite reinforcement is significantly higher (larger) than in elements with steel reinforcement, which is explained by the fact that the composite reinforcement has a small modulus of elasticity (~4 times);
- flexural concrete elements with composite reinforcement are more flexible than elements reinforced with steel rods, this situation is also explained by the low modulus of elasticity in basalt plastic and glass plastic reinforcements; however, it was noted that at the level of normative loads, the amount of slack in flexural concrete beams with composite reinforcement is at the level of requirements for reinforced concrete structures.



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**DEVELOPMENT OF COMPOSITE REINFORCEMENTS AND CONCRETE DEFORMATIONS IN BASALT REINFORCED CONCRETE BEAMS**

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Abstract

This article describes the analysis of the results of the research carried out on the study of the work of composite reinforced elements, which are widely used in the restoration of concrete structures in the buildings and structures currently being built in the Republic of Uzbekistan and in foreign countries.

The article includes the types of composite reinforcements, the physical and mechanical properties of composite reinforcements, and the proposed practical recommendations for ensuring their strength, uniformity and seam resistance.

Keywords: composite, basalt, concrete, flexibility, strength, messura, polymer, deformation, compression, stretch.

Introduction

Currently, polymer composite fittings are used in road transport infrastructure facilities, in areas where high electromagnetic fields are generated, in the chemical industry, water treatment and purification, land reclamation facilities, in the construction of seaports and pre-port facilities, in urban engineering infrastructure facilities, mines and metros. It is effectively used in the construction of tunnels, as well as in the construction, repair and reconstruction of load-bearing and barrier structures of buildings and structures.

The use of polymer composite reinforcements instead of steel reinforcements of reinforced concrete structures working in especially corrosive environments is a promising scientific direction.

In the development of the economy of the Republic of Uzbekistan, in the improvement of its material and technical base, it is important to put into practice the elements that have new constructive solutions and are economically effective based on theoretical and experimental research.[1]

In recent years, the President of the Republic of Uzbekistan and the Cabinet of Ministers have been making important decisions to raise the standard of living of the population and improve living conditions. In the implementation of these decisions, it is necessary to create economically inexpensive construction structures with high strength, uniqueness, and their practical application in the construction of production enterprises, residential buildings, and engineering structures, which are necessary for the economy. The issues raised in this direction include the use of composite materials, which are relevant today. The use of



composite materials in construction increases the overall reliability and technical economic efficiency of industrial, residential, public buildings and engineering structures in accepting permanent, temporary and earthquake stresses.

Year by year, the volume of construction and improvement works is increasing in the Republic of Uzbekistan. In order to successfully implement the planned large-scale construction works, extensive use of new innovative technologies is required. The introduction of polymer composite reinforcements into the construction practice in the conditions of Uzbekistan requires their research in the conditions of our country. Therefore, conducting research in the direction of reinforcement of concrete structures with polymer composite reinforcements is an urgent problem of social and economic importance.[2]

Main Part:

To conduct experimental studies, test models-sample beams with a rectangular cross-section were prepared. Ordinary heavy concrete was used for the beams. Portland cement of Turon cement plant in Beshariq district of Fergana region with activity of 42.5 MPa was used as a binder for concrete. As fillers, quartz river sand from Akbarabad quarry, Kuva district, Fergana region, with a fraction of 5-15 mm and a bulk modulus of M2.25 was used. The composition of the concrete was chosen so that its cubic strength would have a compressive strength corresponding to the class B20 and B35. Granite limestone was sieved, washed in a special device and then dried (Table 1).

Granulation composition of ordinary heavy concrete aggregates. Table 1

Filler type	Residue in % by weight on a sieve with a hole size of mm								
	20	15	10	5	1,25	0,63	0,315	0,14	0,07
Granite limestone	2-4	4-6	90-95	92-100	-	-	-	-	-
Quartz sand	-	-	-	-	1-2	4-5	12-15	45-50	90-100

The consumption of materials for 1 m³ concrete mixture of class B20 is given in table 2.

Concrete composition for sample beams. Table 2.

T/R №	Naming	Amount	O'lchov birligi
1	Farg'ona viloyati Beshariq tuman "Turon" sement zavodining portland sementi M400	300	kg
2	Sheben	1220	kg
3	Kvars qumi	720	kg
4	Suv	150	litr
	Betonning zichligi:	2390	kg/m ³
	Betonning suv / sement nisbati (S/S)	0,50	

The materials were dosed with an accuracy of ± 0.1 kg by weight. An electronic scale with high accuracy was used for this purpose. The results of the cube tests are presented in Table 3.



Test results of cubes made of sample beam concrete. Table 3.

№	Beam cipher	Age of concrete (days)	Edge of sample cubes, cm	Compressive strength of concrete, MPa	Strength of concrete		
					R _b , MPa	R _{bt} , MPa	E _b *10 ⁻³ MPa
1	2	3	4	5	6	7	8
1	BKPA -1	30	10	26,35	14,3	1,33	30,1
2	BKPA -2	30	10	25,42	13,9	1,30	29,6

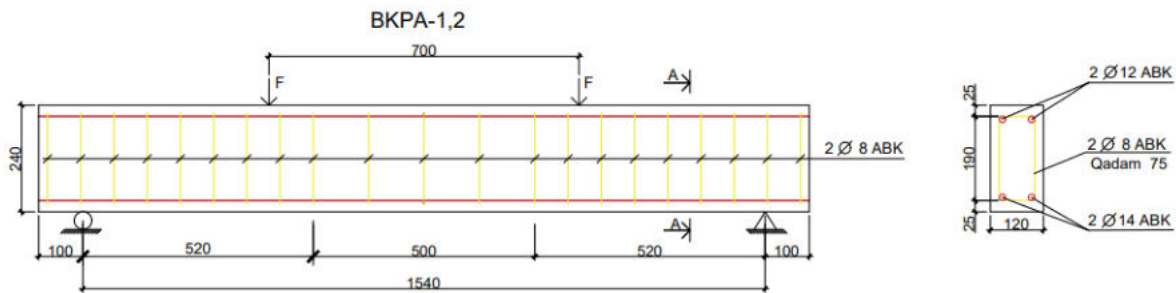


Figure 1. Schemes of reinforcement and loading of sample beams.

Research Results:

Deformations increase proportionally with the increase in load until cracks appear in the longitudinal reinforcement. In this case, the values of deformations in the field of pure bending were slightly higher than those in the range of shearing caused by transverse forces. After the formation of cracks normal to the longitudinal axis of the cross-section in the stretching areas of the beams, the deformations in the longitudinal reinforcements began to increase faster. This situation was especially evident in the places where the cracks cross the reinforcement. Before the formation of normal cracks, the deformations in the longitudinal reinforcements in the area of pure bending were 2-3 times larger than in the area of shearing.[3]

In BKPA-1,2 sample beams, before the formation of normal cracks in the area of pure bending, the deformations of the longitudinal working reinforcements were $\epsilon_f = (56-62) \cdot 10^{-5}$, and deformations in reinforcements during shearing were equal to $\epsilon_f = (52-58) \cdot 10^{-5}$.

After the formation of cracks normal to the longitudinal axis of the BKPA-1,2 sample beams, the deformations of the longitudinal working reinforcements in the pure bending area are $(182-188) \cdot 10^{-5}$, and in the shear areas $(110-190) \cdot 10^{-5}$ increased to values of 10^{-5} . [9]

The subsequent increase in loads led to a certain "flattening" - equalization of the deformations of the longitudinal working fittings along the length of the beams. In this way, as the loads increased, the deformations in the longitudinal working reinforcements also increased. It was found that when the amount of loads is in the range of $(0.8-0.9) K_{ult}$, the deformations of the longitudinal working reinforcements reach up to $(500-600) \cdot 10^{-5}$.



According to the results of the measurements, before the formation of cracks, stresses of (100-140) MPa appear in the longitudinal reinforcements. The average relative deformations of tensile working reinforcements in the field of pure bending continuously increase according to the curvilinear regularity as the amount of load increases, especially at high values of the load, it was observed to increase more rapidly (Fig. 1.).[4]

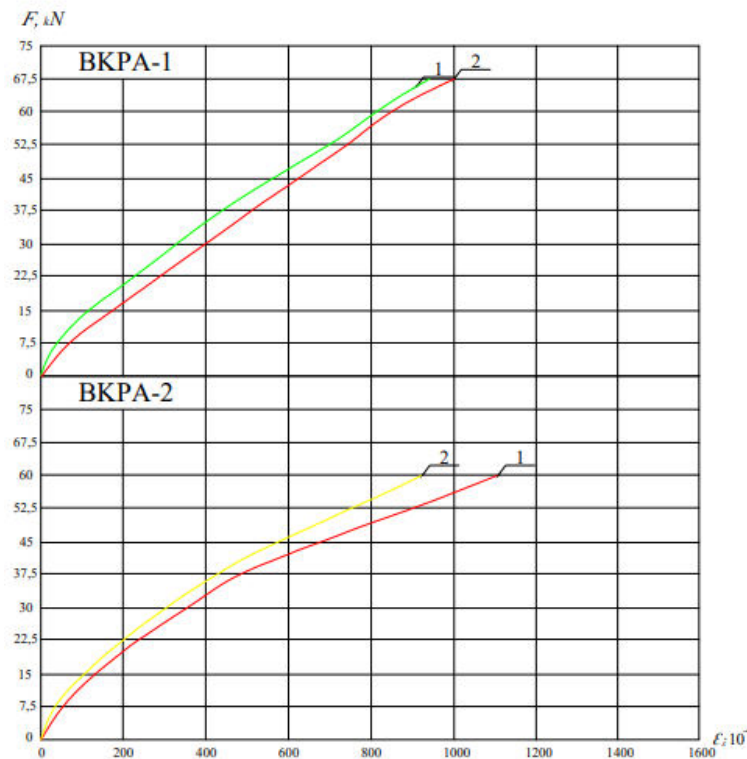


Figure 2. Average relative deformations of sample beam reinforcements:

It was observed that when the BKPA-1.2 load is close to the breaking forces, the deformations in the reinforcements reach values of $(800-900) \cdot 10^{-4}$. From the graph, it can be determined that in such cases the tensile stresses in the fittings are 420-480 MPa. $\epsilon \cdot 10^{-4}$ [8]

Deformations of the beams in the longitudinal reinforcement in the shear range were 1.2-1.5 times less than in the pure bending areas. In these reinforcements, only when the largest loads are applied, that is, before the limit state occurs in the beam, a sharp increase in deformations was observed, and the beams approached the deformations of the reinforcement in the areas of pure bending. [7]

During the preparation of all the sample beams, it was possible to measure the longitudinal compression deformations of concrete on a 30 cm base on 3 levels in the concrete compression zone of the pure bending zone using a PMB-30 portable measuring device.[6-26]

Longitudinal compressive deformations of concrete do not have large values when the applied force is up to 20 kN, and their change increases almost in a straight line. When the force in the sample beams reached 20 kN, the concrete compressive deformations reached the values of $70 \cdot 10^{-5}$, $90 \cdot 10^{-5}$, $120 \cdot 10^{-5}$, respectively, at the levels located 60, 90, 120 mm below the most compressible axis. (Figure 2.).



The increase of the loads in the subsequent stages led to an intensive increase in the longitudinal compressive deformations of concrete. It was observed that when the stage load value approaches the breaking load in the sample beams, the value of the largest compressive deformations $Q=(0.85-0.95)K_{ult}$ reaches $(160-190) \cdot 10^{-5}$. At the last stage of loading, it was found that the longitudinal compressive deformations of concrete reached $(200-230) \cdot 10^{-5}$, and the stresses in concrete reached the limits of its compressive strength. In this case, after the level load reached 35-40% of the breaking load, the accumulation of inelastic deformations occurred in the concrete in the compression area.[5]

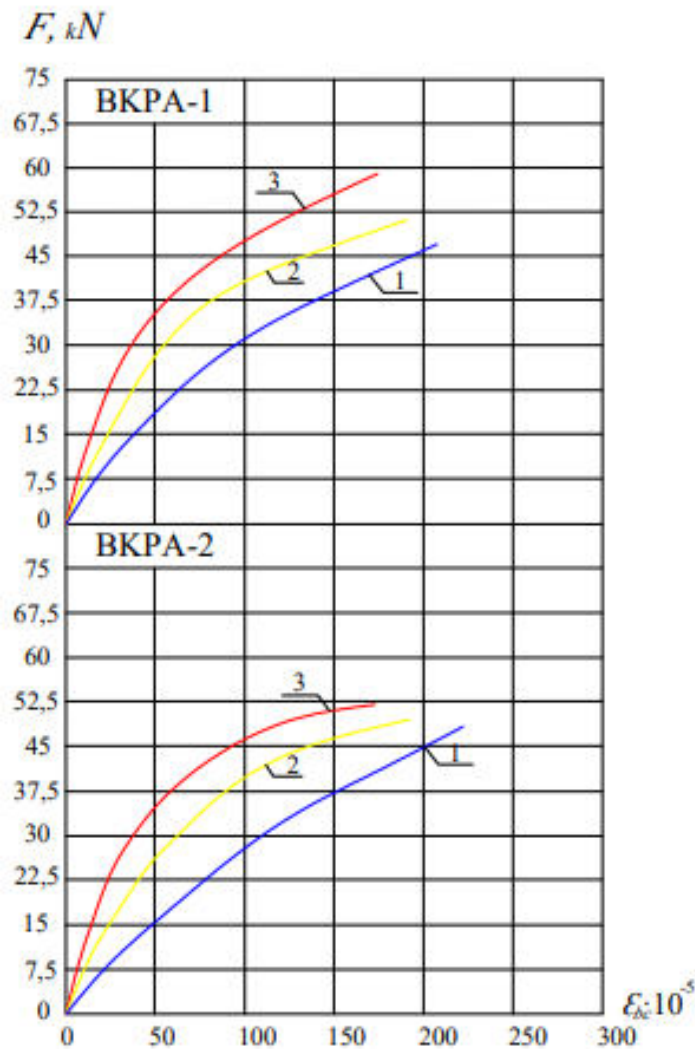


Figure 3. 1,2,3,4,5,6- average relative compressive deformations of the concrete of sample beams in the area of pure bending: 1- at the level located 30 mm from the most compressible side; 2nd at the level located 60 mm from the most compressible side; At the level located 90 mm from the 3rd most compressible side.

Conclusions:

At small values of the loads, that is, when $s_{bt} < R_{bt}$ in the stretching area, mainly elastic deformations and stresses are formed in the beams, the elements work without cracks. After reaching the values $s_{bt} \rightarrow R_{bt}$ in the tensile zone, initially cracks normal to the longitudinal



axis of the cross-section were formed in the pure bending zone of the beams, and then, as the load increased, they were inclined in the shear spans where Q and M acted together. cracks were also formed. The opening width of the initially formed normal and oblique cracks (a_{crc}) was 0.05-0.1 mm.

After the occurrence of limit states, the failure of the sample beams occurred due to a small increase in the loads or keeping them at the level of the stage load. The failure of the elements reinforced with basalt plastic reinforcements in most cases was caused by the breaking of the beams along the oblique sections as a result of the pulling out of the couplings due to the weak connection of the couplings with the longitudinal reinforcements. It should be noted that the element was in the limit state both in the inclined section and in the normal section in the pure bending area before the failure occurred. Sample beams with $a/h_0 = 2.59$ broke relatively quietly, at rest. The damage of the elements reinforced with metal reinforcements occurred due to the breakdown of the concrete in the compressible part of the element area. It is worth noting that in the elements with a high class of concrete, the damage was relatively quiet and peaceful.

The maximum deformations formed in the longitudinal tensile reinforcements indicate that the tensile stresses in the amounts reaching the design resistance of the composite reinforcements have been generated in them.

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**PROCESSES OF HEAT TRANSFER FROM BUILDING STRUCTURES OF BUILDINGS**

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Abstract

Reducing the amount of energy lost from the building is an urgent issue in ensuring the energy efficiency of the building. The amount of energy lost from the external barrier structures of the building makes up a large part of the amount of energy lost from the building. Therefore, it is possible to increase the level of energy efficiency of the building by reducing this consumption. This article presents and analyzes information about the types of heat transfer processes lost from the building's barrier structures and its impact on the building's energy efficiency.

Keywords: Energy efficiency, convection, radiation, thermal conductivity, resistance to heat transfer, wall, temperature, heat flow.

Introduction

The issue of energy efficiency in the field of construction is one of the current issues. The fact that the territory of the Republic of Uzbekistan is very hot in summer and cold enough in winter requires additional energy for heating buildings in the cold season and cooling in the hot season. The limited energy resources mean that it is permissible to pay serious attention to the problems in this regard. The energy efficiency of buildings is explained by the thermal conductivity of the external barrier structures of the building. Below we will consider how the phenomenon of heat transfer occurs and what it depends on.

If the temperature is different at different points of an environment, it is possible to observe the movement of heat between these points. Heat always moves from a point of higher temperature to a point of lower temperature. This phenomenon can be observed in practice in the external barrier structures of buildings. In winter, heat passes from the indoor air of the building rooms to the outdoor air through the external barrier structures. The amount of heat consumed in the building is filled by various heating equipment. In summer, the reverse of this phenomenon can be observed. The necessary low temperature of the air in the "refrigerator" rooms is provided with the help of special cooling machines, in some buildings with the help of ventilation equipment and air conditioners. In this case, the movement of heat is directed from the outside to the inside [1].

The movement of heat from one point to another can take three forms. These are: through heat conduction, radiation and convection methods. We will consider these types below.

The movement of heat through thermal conduction is mainly observed in solid bodies. For example, we can see that when one end of any metal rod is heated, it heats up towards the other end. This phenomenon can occur not only in solids, but also in liquids and gases. In other aggregate cases, this phenomenon does not occur in the pure state. In solids and liquids,



energy is transferred by means of elastic waves, in gases - by diffusion of atoms or molecules, and in metals - by diffusion of electrons. Most building materials are porous bodies, and all kinds of heat transfer can be observed in their capillary pores. However, in thermal physics calculations, it is assumed that the distribution of heat in the material takes place only at the expense of thermal conductivity.

The heat flow in thermal conductivity is directly proportional to the temperature difference.

$$Q = \lambda (t_2 - t_1) F \cdot z / \delta \quad (1)$$

here, λ - the heat transfer coefficient, $\text{Wt}/(\text{m} \cdot ^\circ\text{C})$.

δ - wall thickness, m.

F - wall surface, m^2 .

Z - time, hour.

t - temperature, $^\circ\text{C}$.

The second type of heat transfer is convection. Convection can be observed only in liquid and gaseous medium. Convection can occur in two ways. The first is natural, i.e. it occurs due to the temperature difference in the existing environment. In this case, a part of the liquid or gas with a higher temperature tries to move to a higher place than the liquid with a higher density due to the decrease in density. This is a heat transfer process that occurs due to the difference in densities. The second type of convection is artificial convection. In this case, the movement of air with a temperature change occurs under the influence of an artificial external force. For example through ventilators [2].

The third type of heat transfer is radiation. Thermal energy is transferred from the surface of the body to light energy, and this energy is absorbed by the surface of the second body and turns from light energy into heat energy. The surface of the floor of the building and the surface of objects falling on the light is heated by the rays of the sun falling from the windows of the building, and due to this heat, the temperature of the room also rises.

Resistance to heat transfer is denoted by the letter R [$\text{m}^2 \text{ } ^\circ\text{C} / \text{Wt}$]

When the heat flow passes through the wall, it encounters 3 different resistances:

- 1- The resistance created by the existing difference between the temperature of the indoor air and the inner surface of the wall, is called heat absorption resistance:

$$R_{\text{aq}} \sim t_i - \tau_i \quad (2)$$

- 2- The resistance due to the temperature difference between the inner and outer surface of the wall is called thermal resistance:

$$R_t \sim \tau_i - \tau_t \quad (3)$$

- 3- The resistance associated with the difference between the temperature of the outer surface of the wall and the temperature of the outside air is called the resistance to heat transfer:

$$R_b \sim \tau_t - t_t \quad (4)$$

Q – heat flow.

t_i - internal temperature

τ_i . temperature on the inner surface of the wall

t_t - outside air temperature

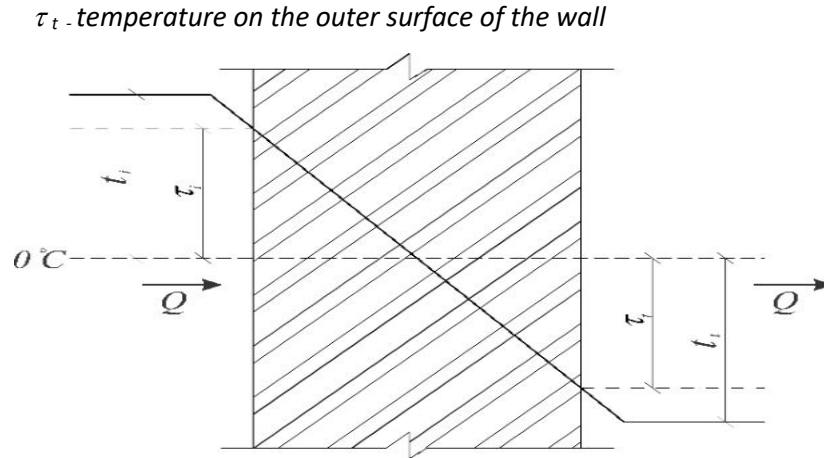


Figure 1. Resistance of the heat flow in the cross-section of the wall

The higher the resistance to heat transfer through the building's barrier structures, the more energy efficient the building is. The essence of an energy-efficient building is to minimize the amount of heat that can pass through the barrier structures. When designing the building's external protection devices for winter conditions, the total resistance of the device is compared with the required resistance.

When designing buildings for winter conditions, the total calculated resistance should be greater than or equal to the total authorized resistance.

$$R_{um}^{re} \leq R_{um} \tag{5}$$

The total calculated resistance of the device is determined by the following formula:

$$R_{um} = R_{qq} + R_t + R_b \tag{6}$$

The heat transfer coefficient inverse to R is denoted by α [Wt/ m² °C]

$$R = \frac{1}{\alpha} \tag{7}$$

This is the coefficient QMQ 2.01.04-18 is given in Table 5-6.

The thermal resistance of the protective device, if the device is single-layer, is determined by the following formula:

$$R_t = \frac{\delta}{\lambda} \tag{8}$$

If multi-layer, thermal resistance:

$$R_t = \sum \frac{\delta}{\lambda} + \frac{\delta_1}{\lambda_1} + \frac{\delta_2}{\lambda_2} \dots \frac{\delta_n}{\lambda_n} \tag{9}$$

is calculated by the formula.

Here, δ - the thickness of the protective structure, m.

λ - heat transfer coefficient. This coefficient QMQ 2.01.04-18 is given in Appendix 2.



The formula for finding the total allowable resistance is as follows:

$$R_{um}^{re} = n (t_i - t_e) / \Delta t^n \alpha_i \quad (10)$$

Here: n - coefficient that takes into account the location of the external protection device relative to the outside air. QMQ 2.01.04-18 is obtained based on Table 3 of. In most cases $n = 1$ is taken as. In unheated basements, $n = 0.9$ is taken as.

t_i = calculated value of indoor air temperature, °C.

t_e = calculated temperature outside in winter, °C.

Δt^n = change of temperatures on the inner surface of the protective device with indoor air temperature. QMQ 2.01.04-18 is obtained from table 2 of.

α_i - coefficient of heat transfer of protective structures.

The resistance of barrier structures to heat transfer is important in the design of buildings. Construction standards and regulations stipulate that the following should be taken into account when designing buildings and structures in order to reduce heat loss in the cold season and heat inflow in the hot season:

a) volume-planning solutions, in which it is necessary to take into account the smallest area of the outer barrier structures, the location of the rooms with higher heat and humidity on the side of the internal walls of the building;

b) rational use of effective thermal insulation materials with a thermal conductivity coefficient not exceeding 0.1 W/(m·°C);

v) the area of light intervals, in which it must correspond to the minimum value of the standard value of the coefficient of natural illumination;

g) that the light spaces are protected by solar protection devices, in which the standard value of their heat transfer coefficient should ensure the unopposed penetration of solar energy in the cold season of the year;

d) reliable sealing of joints and seams in external walls and roofs during their use.

Calculated heat costs for heating and ventilation of the building being designed, as well as calculated cooling costs for air conditioning and cooling QMQ 2.01.18-2000 must correspond to the standard values specified in.

It is recommended to use single-layer and multi-layer constructions for external barriers.

In order to ensure the best performance properties when using multi-layer barrier structures, it is necessary to place layers with higher thermal conductivity and higher resistance to vapor transmission on their inner side. A heat-retaining layer made of effective heat-insulating materials should be placed on the outside or in the middle of the barrier structure.

The coefficient of thermal conductivity of the materials in the dry state in the heat-insulating layers of the barrier structures should not normally exceed 0.14 W (m·°C) [3-26].

In order to ensure the energy efficiency of buildings in construction, the use of materials with high resistance to heat transfer of external barrier structures of buildings will reduce the amount of energy loss that can be expected in the future. In local housing construction, the construction of barrier constructions based on cost rather than thermal conductivity will lead to an increase in energy consumption and energy consumption in buildings in the future.

In most cases, it will not be possible to buy most of the rural houses. The reason for this is not only the lack of energy resources, but also the high energy consumption in such houses, and the fact that energy efficiency issues are not taken into account.

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**PRIORITIES IN THE USE OF INNOVATIVE TECHNOLOGIES IN THE PRODUCTION OF BUILDING MATERIALS AND RELATED SOLUTIONS**

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Abstract

The article examines the prospects for the development of material resource management in construction using modern information technologies and digital tools. The analysis showed that existing methods of managing material resources have their advantages and disadvantages, but their effectiveness can be improved by using modern information technologies and digital tools for project and resource management. However, for this it is necessary to develop and implement appropriate regulatory documents and train construction company personnel to use new tools for managing material resources.

Keywords: management, material resources, construction industry, just-in-time, inventory management, information technology, digital tools, regulatory framework, efficiency, project management, cost optimization.

Introduction

Material resource management is an important aspect of management in the construction industry, as material costs can account for a significant proportion of total construction costs. There are various methods of managing material resources, such as just-in-time, inventory management and others. However, the application of these methods may face a number of problems related to the imperfection of the regulatory framework, restrictions on their use, as well as the need for effective management of the flow of information about material resources [1,2].

The main idea of just-in-time is to produce goods only when they are needed, in the right quantity and at the right quality level. This allows you to reduce inventory and get rid of unnecessary costs for storage, transportation and inventory management. At the same time, companies using just-in-time are aimed at high production efficiency, process optimization and product quality improvement. The principle of just-in-time is based on the close interaction between production and supply. Suppliers of materials and components supply them to production only when they are needed, and only in the required quantity. Thus, the production process does not depend on stocks and supplies, but is determined by the needs of consumers. [4,5] In order to apply just-in-time, it is necessary to establish close cooperation between production and suppliers. It is also important to organize production processes in such a way as to minimize the time for equipment changeover and product change. The advantages of just-in-time are to increase production efficiency, reduce the



cost of storage and inventory management, improve product quality and reduce the risk of excess inventory. However, in order to apply just-in-time, careful organization of production processes is necessary, as well as a high level of coordination between production and suppliers [2,3]. A review of the literature on this topic has revealed that this problem is important for the construction industry. There are many approaches and methods of material resource management in the literature, including traditional inventory management methods, the JIT method, the ABC analysis method, and others.

One of the most common methods of managing material resources in construction is the JIT method (Just-In-Time), which involves minimizing the level of stocks of materials and component parts. This method allows you to reduce the cost of storing and transporting materials, as well as improve the efficiency of the construction process. [9,10]

Another method widely used in construction is the ABC analysis method, which is based on the classification of materials depending on their cost and significance for the project. In this way, managers can determine which materials should be given special attention and control. The literature also discusses the issues of rationing the consumption of material resources. To do this, various methods are used, such as the standard estimate method, the linear normalization method, and others.

Thus, a review of the literature shows that the management of material resources and the rationing of their consumption are complex and multifaceted tasks that require different approaches and methods [3,6].

The methodology for managing the material resources of construction organizations and rationing their consumption may include the following steps:

1. Analysis of the need for material resources: conducting an analysis of the needs for materials for a specific project. This step allows you to determine the required amount of materials and components, as well as their cost. [11,12]
2. Determination of the minimum stock level: based on the analysis of needs and identification of risks associated with a delay in the supply of materials, it is necessary to determine the minimum stock level that will ensure the smooth execution of work.
3. Using the JIT method: using the JIT method, it is necessary to determine the optimal inventory level, which will minimize the cost of storing and transporting materials, as well as improve the efficiency of the construction process.
4. Application of the ABC analysis method: for effective management of material resources, it is necessary to use the ABC analysis method, which allows you to identify materials with high cost and significance for the project. Special attention and control should be paid to these materials.
5. Rationing of the consumption of material resources: carrying out rationing of the consumption of material resources using various methods, such as the standard estimate method, the method of linear normalization and others.
6. Use of information systems: For more effective management of material resources, information systems should be used that allow you to automate the management of material resources, speed up the decision-making process and improve control over the management process. Thus, the methodology of managing the material resources of construction



organizations and rationing their consumption includes an analysis of the need for materials, determining the minimum level of stocks, using the JIT method, using the ABC analysis method, rationing the consumption of material resources and the use of information systems [7,8].

The results of the study:

1. Improving the efficiency of resource management: The use of modern methods of material resource management, such as the JIT method and the ABC analysis method, can significantly improve the efficiency of resource use. This allows you to reduce storage costs, minimize delays in deliveries and optimize material costs.
2. Reducing costs and increasing profitability: Effective management of material resources allows you to reduce the cost of purchasing and storing materials, as well as optimize the use of resources on construction projects. This leads to an increase in the profitability of the construction company.
3. Reduction of project execution time: Well-organized management of material resources allows you to reduce the execution time of construction projects. Thanks to the JIT method and optimization of supply processes, materials and components become available at the right time, which allows you to speed up the construction process and reduce time delays.
4. Improving the quality of construction projects: Effective management of material resources also affects the quality of construction projects. The correct choice of materials, their timely delivery and control over use make it possible to prevent errors and defects, which leads to an increase in the quality and durability of construction projects.
5. Reducing the negative impact on the environment: The rational use of material resources helps to reduce the negative impact on the environment. Reducing excess and waste materials, optimizing logistics and choosing environmentally friendly materials contribute to the sustainable development of the construction industry. [13-26]

Thus, the results of research on material resource management and rationing of their consumption confirm the importance of developing and applying effective methods of material resource management in construction organizations. These results provide valuable information and recommendations for practical application in the construction industry in order to improve productivity, economic efficiency and environmental sustainability of projects.

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**APPLICATION OF COMPOSITE MATERIALS IN REINFORCEMENT OF REINFORCED CONCRETE STRUCTURES**

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Abstract

During the years of independence, large-scale work is being carried out in Uzbekistan to develop the quality of construction and improve the achievement of economic efficiency. The consistent implementation of important priorities, programs and projects on the development of infrastructure facilities in our republic is the development of modern construction in cities and districts, including rural areas. In the Republic of Uzbekistan, great attention is paid to the development of a national-innovative system in the production of building materials, objects and structures, ensuring the required growth rates of modern construction and the development of the construction industry. This article provides relevant instructions on the problems that the materials used in the reinforcement of reinforced concrete structures face in them, and of course on modern solutions.

Keywords: Fittings, Composite, deformation, cone, clamps, panels, brick walls, carbon fibers, expulution, delamination, columns, lintels.

Introduction

The construction structures of buildings and structures go through several stages before they are completed from the beginning of operation. At each stage (lasting 15-20 years), structural disorders occur, so-called Wear and tear or malfunctions, as a result of emergencies that require restoration work. Each phase ends with a major renovation or reconstruction, giving the old building a new life. [1,2] strengthening the load-bearing structures of buildings and structures is one of the main directions of construction in the near future. The design of fittings is almost always more difficult than new designs. As a rule, in each individual case, certain individual characteristics must be taken into account. To date, great experience has been accumulated in the strengthening of various reinforced concrete structures. [4,6] when designing an armature, two approaches are performed - unloading the existing structure (i.e. transferring the load to a partial or complete armature structure) and increasing the load-bearing capacity of the existing structure.

Main Body:

The buildings and structures currently in use are mostly constructed of stone or reinforced concrete. The use of load-bearing structures made of these materials is economically desirable. They are quite durable, technologically advanced, meet climatic requirements.



[3,5] at the same time, stone, concrete and reinforced concrete conglomerates, composite materials, that is, materials, are very heterogeneous. In the event of a violation of the initial state of these materials, a failure of the structural elements of the building occurs. Disturbances or damage that occur in the material of structures are the cause of a decrease in the reliability of buildings. A gradual decrease in strength characteristics occurs under the influence of external (natural and man-made) and internal (functional or technological) factors. The materials of construction structures are affected by mechanical loads and physical and chemical effects of the environment during the operation process, resulting in structural changes and a decrease in the quality of the material. [9,10] Initial defects and breakdowns lead to the development of different types of damage, different levels of risk and reliability, and therefore the level of risk of continuing structures. As a rule, the need to strengthen the structures of buildings and structures occurs as a result of the occurrence of emergency situations that lead to a change in normal conditions of use, with the appearance of natural disasters, sediments, cracks and individual deformations in foundations. [8,11] structures and in the building as a whole. There are several types of classification of reinforcement methods. Depending on the purpose of increasing the load-bearing capacity of reinforced concrete structures, three ways can be achieved:

the first is to install new replacement or unloading facilities when existing structures are difficult to use;

the second is the restoration of damage to structures with reduced load capacity during Operation;

the third is an increase in the load - bearing capacity of structures, which are expected to significantly increase external loads during operation.

In cases where the load-bearing capacity of existing structures is less than 50%, or supporting structures (made of concrete, steel) are corroded and the next process cannot be stopped, existing structures are replaced with new ones that take on all the useful load (Figure 1). Partial unloading of elements, such as board plates, secondary and primary barriers, barriers, etc., is used when only part of the load needs to be removed from the lowered structure. The peculiarity of this method is that in the unloading and unloading structures, the redistribution of forces occurs in proportion to their rigidity, and their joint work is a necessary condition. [7,12] any decision on reinforcement is not an easy task, because there cannot be template solutions, since each case is unique and has its own characteristics. Unloading structures can be made in the form of beams or columns mounted on medium supports, reducing their range and perceiving part of the load. During partial discharge, additional discharge elements can come into contact with existing structures along the entire length or at certain points. Additional drop elements should be considered as a partial drop design, as opposed to an extension, unless their placement ensures joint operation with a reinforced element along the entire length.[13] Partial unloading of structural elements is recommended if only part of the load has to be removed from the unloaded structure. If the supports of the elements that receive the load of the unloading structures do not have the necessary load-bearing capacity or there are no supports for installing the unloading structures, special support clamps are installed on the columns



(Figure 1). Before installing reinforced concrete support clamps, it is recommended to grind the surfaces of the columns and columns to the thickness of the protective layer to open the reinforcement. Concrete for support clamps should be on finely ground stone or gravel in a plastic consistency with 10 cm conical pull. As one of the reinforcement methods, a sticker is inserted into the cracked areas of fiberglass and carbon fiber materials (Figure 2). When reinforcing with clips, shirts, when building fittings without additional tension, it is necessary to try to bring down the reinforced structure to the maximum. In the case of strengthening structures under load, it is usually recommended to use pre-stressed reinforcing elements. Restoration and strengthening of surrounding structures in the form of panels, brick walls and other individual elements of buildings (columns, lintels, individual parts and associations of walls) is reduced to three main cases, depending on the technical condition of the stone.



Figure 1. Emergency reinforced concrete column, a state replaced by a unloading system.

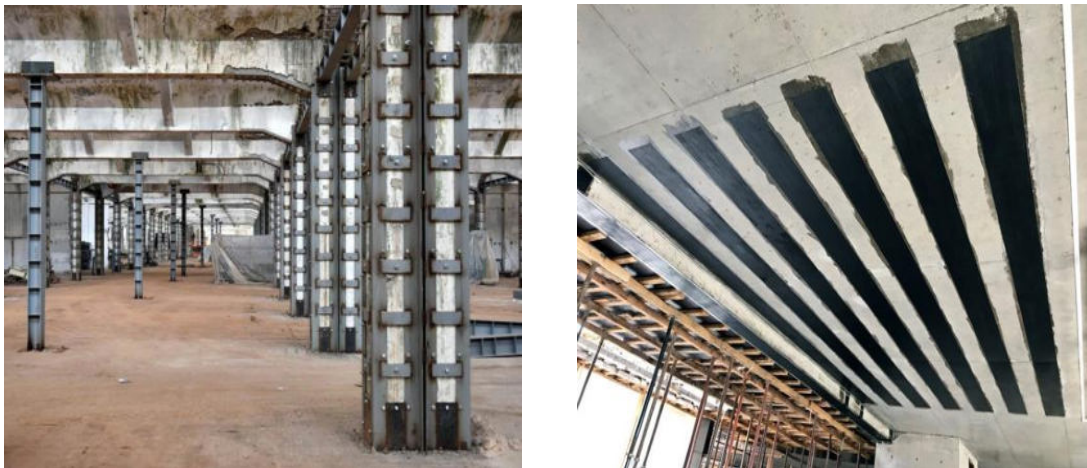


Figure 2. Local reinforcement by reinforcing the column with reinforced concrete clamps and gluing carbon fiber materials.

1. Given the existing weakening, the load-bearing capacity of the stone is sufficient, the decrease in the load-bearing capacity is not more than 15% of the original, the damage to the stone is negligible. Existing cracks are closed with mortar, no other measures are required.



2. The load-bearing capacity of the Masonry is sufficient to absorb the load, so no reinforcement is required, but the weakening of the wall with cracks exceeds 1/3 of the original strength with significant delamination of the wall. The technical condition is assessed as limited performance. Restoration is required by local re-laying of the part of the walls with cracks. Posts and studs are plastered over a structural mesh made of steel with a diameter of 4-6 mm with cells measuring 15x15 cm or reinforced with clamps.

3. The load-bearing capacity of stone elements is insufficient, with a loss of 50%, the technical condition is assessed as unacceptable; reinforcement is required.

Clips strengthen not only damaged parts of the walls, but also lintels over the holes in them

Conclusion

To decide on the necessary measures for strengthening structures, information about the types and nature of violations, as well as the expected consequences, is required. The causes of damage to building elements can be overloads, violation of the load application system, changes in geometry, material quality, etc. Of course, enough work is being done on the sections seen, and I believe that this in turn is an effective result of the reforms being carried out in our country.

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INVESTIGATION OF AREAS OF NON-CONTACT IMPACT ON LAND AND BUILDINGS

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Abstract

A description of the waves that occur in the ground when using the proposed non-contact shock method for testing the seismic resistance of buildings and structures during operation is presented.

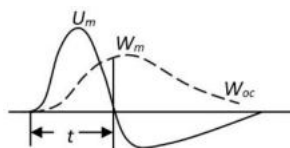
Keywords: earthquake resistance of buildings and structures, impact equipment, detonation, fuel mixture, shock zones, shock waves.

Introduction

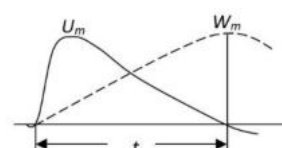
According to the epicentral distance, the impact effect is divided into central, epicentral, near, middle and far zones (Fig. 1):

1. Central zone $R_0 \geq 1$ m

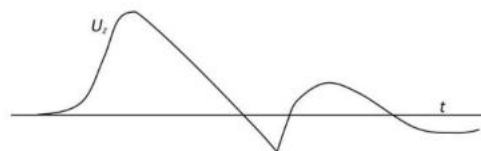
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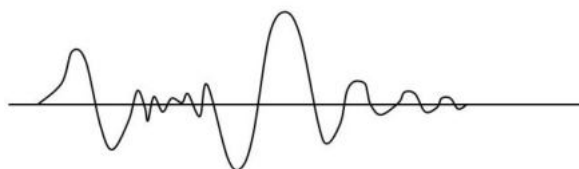
b)



2. Epicentral zone $R_0 \geq 5$ m

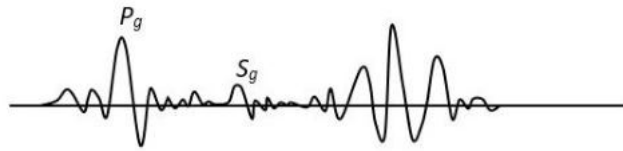


3. Near zone, $R_0 \leq 10$ m





4. Middle zone, $10 \leq R_0 \leq 100$ m



5. Far zone, $R_0 \geq 1000$ m

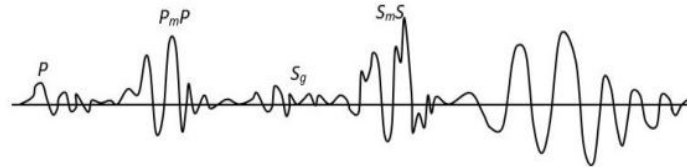


Figure 1. Dividing the seismic effect created by an impact into zones

1. Determination of impact indicators in the central impact zone.

In this zone, the formation of a seismic source occurs in waves. The main processes occurring at the impact site are compression wave, plastic deformation, fragmentation of the medium, and the formation of a cauldron. In hard rocks with low porosity, the cauldron-like cavity is mainly manifested by compression of a certain volume by a compression wave.

The size of voids r_n , the zone of plastic deformation R_* the impact force is in q and depends on such properties of the medium as compressibility and strength, and is written by the following expression (1) [1].

$$r_n = \frac{0,61q^{1/3}}{(\rho c_p^2 \sigma_*^2)^{1/9}}; R_* = \left(\frac{\rho c_p^2}{4\sigma_*} \right)^{1/3} r_n, (1)$$

Here ρ , c_p is the density of the medium and the speed of sound in the ground, σ_* and the ultimate compressive strength $r_n/q^{1/3} = 8 \div 12 \text{ M}/\text{km}c^{1/3}$ and $R_* = (4 \div 6)r_n$ and in porous alluvial weak rocks $r_n/q^{1/3} = 13 \div 17 \text{ M}/\text{km}c^{1/3}$ and $R_* = (5 \div 8)r_n$. Thus, the residual displacements correlate well with the size of the void, and plastic deformation zone - with a finite void size, which proves that the void medium is formed due to compression into an elastic region. The amplitude of the compressed wave in this region is proportional to the size of the compressed volume.

The period of oscillations propagating in the elastic zone is proportional to the radius of the plastic deformation zone R_*/C_p and is considered as a seismic source of the plastic deformation zone. A number of observations and measurements in this direction are presented in the following sources [2-3]. The measurements showed that the condition of geometric similarity is fulfilled in the central zone of the given properties of the medium.

So the mass velocity U_m is equal to a given distance $\bar{r} = r/q^{1/3}$ ratio from the center of impact is the following expression.

$$U_m = \frac{A}{\bar{r}}, \quad \text{M}/c \quad (2)$$

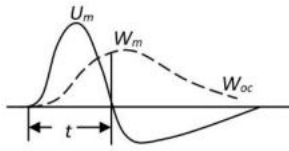
Here, the impact energy is given in knots, and the distance is given in meters. Figure 1 shows



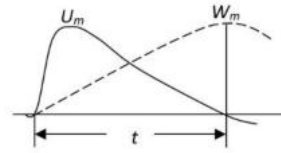
the patterns of ground vibrations near the explosion zone.

1. Central zone $R_0 \geq 1$ m

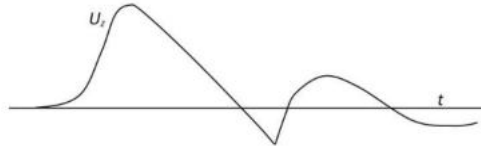
a)



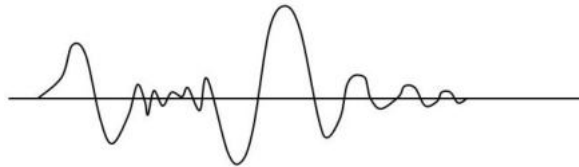
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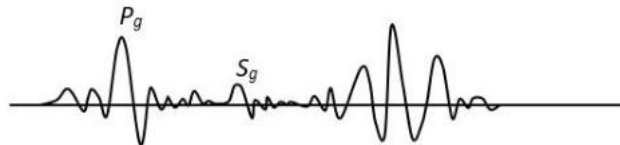
2. Epicentral zone $R_0 \geq 5$ m



3. Near zone, $R_0 \leq 10$ m



4. Middle zone, $10 \leq P_0 \leq 100$ m



5. Far zone, $R_0 \geq 1000$ m

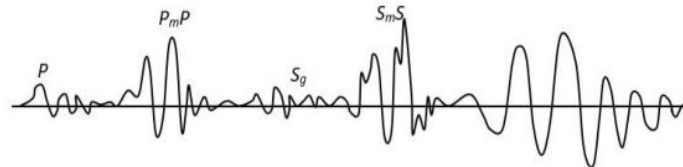


Figure 1. Dividing the seismic effect created by an impact into zones

The following equations apply between the maximum increase in the mass velocity t_n and the duration of the compression phase t_n in different soils:

$$\frac{t_n}{q^{1/3}} = 10 \lg \frac{r}{q^{1/3}}, \quad \mu c / \kappa m c^{1/3}; \quad \frac{t_n}{q^{1/3}} = 5 \lg 0,05 r / q^{(1/3)}, \quad \mu c / \kappa m c^{1/3} \quad (3)$$

and in the region of inviscid deformation:

$$t_n / q^{1/3} = 20 - 40 \mu c / \kappa m c^{1/3} \text{ and } t_n / q^{1/3} = 5 - 15 \mu c / \kappa m c^{1/3} \text{ it will be}$$

In weak or multiporous media, t_n and t_n can be 2-3 times higher. From the dependencies of expressions (2) and (3), we can estimate the average acceleration of the compression wave and the maximum displacement W_m :

$$W_m = U_m t_n / 2; \quad a_{cp} = U_m / t_n \quad (4)$$

The energy of the shock wave E_s , determined from the results of teleseismic signal



processing [3-5], mainly depends on the properties of the rock in the shock source, its relative value is given in Table 1.5.

2. Investigation of ground vibration in the epicentral zone.

In this impact zone, the main ground movement is characterized by the reflection of the compression wave from the free surface. The epicentral zone is usually measured by the radius of the rupture zone. Its dimensions are $H/q^{1/3} \leq 0,10 \div 0,2 \text{ м}/\kappa\text{m}\text{c}^{1/3}$ is equal, and with such a deep impact, the free mass rises sharply and separates the upper layer from the main massif. The depth of the separation layer is determined by the intensity of the impact and the compressed wave. The maximum separation depth does not exceed half the wavelength.

$\delta = C_p t_n / 2$ The intense separation radius in the horizontal direction $\bar{R} = (0,25 \div 0,35) \text{ м}/\kappa\text{m}\text{c}^{1/3}$ equal, different natural rocks are in a layered, fractured or solid state, and the separation radius $\bar{R} = (1,0 - 1,5) \text{ м}/\kappa\text{m}\text{c}^{1/3}$ is equal. The vertical component of seismic impact in the epicentral zone is shown in Fig. 1.

The maximum speed of this movement is the depth of the explosion. $\bar{H} = H/q^{1/3}$ and depends on the geological structure of the area. The vertical component of the velocity in the epicenter of rocks on the immediate side surface is equal to twice the velocity of their maximum weight and can be estimated by formula (2):

$$U_z = \frac{2A}{\bar{H}^n}, \frac{cM}{c}, \quad (5)$$

In soft alluvial soils, the surface velocity does not double during blasting operations. In case of surface shocks in the area of rocks covered with a layer of soft soil of very high power (on average $10 \div 10^2 \text{ m}$), the rate of rise in the epicenter corresponds to the contrast.

$$U_z = \frac{25}{\bar{H}^{1,7}} \frac{cM}{c}, \quad (6)$$

As the epicentral distance R_0 increases, the vertical component of the velocity decreases (at a typical surface jump depth of the jump $\bar{H} = 0,1 - 0,15 \text{ м}/\kappa\text{m}\text{c}^{1/3}$):

$$U_z = 12 / \bar{R}^2, \text{ cm / s}; 0,1 \leq \bar{R} \leq 0,3 \text{ when } \text{m}/\text{cc} 1 / 3; \quad (7)$$

$$U_z = 20 / \bar{R}^{1,6}, \text{ cm / s}; 0,3 \leq \bar{R} \leq 1 \text{ when } \text{m}/\text{cc} 1 / 3.$$

In such a layered medium, a distinctive feature of movement along the surface of the medium in the epicentral zone of the surface shock is a significantly smaller horizontal component compared to the vertical one. $\bar{R} < 0,3 \text{ м}/\kappa\text{m}\text{c}^{1/3}$, this difference can reach 5-10 times. As you move away from the epicenter, this difference gradually decreases and $\bar{R} \approx 1 \text{ м}/\kappa\text{m}\text{c}^{1/3}$ $U_x = U_z$ will be equal to the ratios (5), (7). It is easy to estimate the time and height of the free surface.

$$t = \frac{2U_z}{q}; \quad h = \frac{U_z^2}{2q}.$$



Due to the relatively small area of the epicenter, as well as the unacceptable seismic impact on buildings and structures, this area is not of practical interest and in the future may be relevant only for aftershocks of shallow depth.

3. Ground vibration in the near zone.

Size $1\text{ км}/\text{кмс}^{1/3}$ and $10\div 15\text{ м}$ In a zone up to, the maximum oscillation rates are usually associated with a long wave P as is the compression wave in this zone. Oscillation velocities are usually associated with the longitudinal wave R, which is directly recorded in this region as a compression wave (Figure 1). The displacement on the recordings is proportional to it, and by the end of the region, the amplitude of the surface wave R of the relief type is high, which can be observed from a reduced distance of $0,5\text{-}1\text{ м}/\text{кмс}^{1/3}$ The largest amplitudes of vibrations of both the R-wave and the R-wave were recorded in the horizontal and vertical directions.

Tangential components of vibrations caused by the hydrogeological structure of the medium gradually begin to appear. The kinematic characteristics of different phases of vibrations in a seismic wave depend on the geological and structural features of the physical and mechanical properties of rocks composing the territory of a given region. The main attention is paid to the seismic effects of horizontal velocity components. Observations have shown that the main parameters of fluctuations in this area correspond to the law of energy similarity in formula (2), and the degree and rate of decrease depend on the type of ground rocks. So, for the horizontal component of the P wave, based on the results of processing experimental data on granites and sandstones, the following inequality was proposed.

$$U_{px} = 12 / \bar{R}^{1,75}, \text{ см} / \text{с}; \quad R_0 \leq 100 - 150 \text{ м} \text{ when (8)}$$

In other geological conditions, represented by regional shales and quartzite-sandstones, the ratio of the horizontal component of the wave P according to shock data is as follows:

$$U_{px} = 5,7 / \bar{R}^{1,9}, \text{ см} / \text{с}; \quad R_0 \leq 100 - 150 \text{ м} \text{ when (9)}$$

Based on the above relations (8) and (9), ground rocks are obtained by installing devices at the exit points and are shown in rows 1 and 2 according to Figure 4.1. When measuring a layer of soft rock with a thickness of about 10 m or more, we see that the vibration rate is about twice as high.

4. Ground vibration in the middle zone. In the middle zone, at altitudes of 100-150 m and approximately 800-1000 m, the amplitudes of the main longitudinal waves emanating from the granite-basalt layer predominate. The amplitudes of vibrations in the group of low-frequency surface waves (Fig. 1) are still distinct. The propagation velocities of similar seismic waves are averaged, and the duration of vibrations increases, forming several variable phases.

This is the most dangerous group of longitudinal waves in terms of seismic impact on buildings. $T_p = 0,1 - 0,5 \text{ с}$ with a period that includes the maximum vibration speeds in the high-frequency range. Experiments show that the intensity of vibrations in the middle zone significantly depends not only on the impact energy or the properties of the soil at the source, but also on the properties of the velocity component and the location of the reflecting layers in the earth's column. the crust. More successful for the analysis was the dependence that



establishes the correlation of vibration parameters separately from the impact energy and epicentral distance:

$$U = Bq^n R^k \quad (4.11)$$

Based on the materials of foreign and domestic studies [6-9], the following relations can be recommended for the maximum values of the horizontal and vertical parts of the vibration velocity in the group of longitudinal waves of the middle zone:

$$U_{px} = 15 q^{0.7} R^{-1.5}, \quad cM / c;$$

$$U_{pz} = 35 q^{0.7} R^{-1.85}, \quad cM / c. \quad (4.12)$$

There is a significant dependence of the amplitude and time parameters of regional oscillations on the general geological structure of the region, the seismic characteristics of the direction and recording conditions in the range of specified distances. Thus, the influence of the direction and recording conditions leads to significant discrepancies in the parameters of seismic waves on different profiles up to 50-100% of the amplitude spread. However, on the other hand, the dependence of seismic vibrations on geological conditions ensures the stability of wave parameters at these distances in comparison with the nearby region, where the specific conditions and properties of rocks in the shock source have a great influence on the occurrence of seismic vibrations. Therefore, the corresponding formula (4.13) can be successfully used to estimate the strength of aftershocks from the amplitudes of the maximum displacement of the surface wave in the calibrated direction. This experimental fact shows that it can also be successfully used in the development of a system for monitoring the energy parameters of impacts above and below the ground.

5. Ground vibration in the far zone.

It is known that waves of dominant (very large) amplitude (RmR and SmS waves) are reflected in a group of waves in a region extending over distances of more than 800-1200 m (Figure 5.1, point 5). The distance at which these waves appear and their intensity are closely related to the properties of the high-speed part of the Earth's crust, that is, its acceleration, speed difference, the presence of a transition layer, etc. Therefore, the predictive dependences of the maximum oscillation velocity in longitudinal waves have a maximum in the range of 1000-1500 m (Figure 1.3, 1 us for curve 4, 100 us for curve 41). If the thickness of the deposit is sufficient or the water table is high, the vibration rate can be doubled, which is clearly shown in Figure 1.3. In the group of longitudinal waves at distances of 1500-3000 m, the appearance of repeatedly reflected longitudinal and transverse waves of significant intensity is observed, as well as a sharp increase in the observed oscillation periods by about 1 second. For the horizontal component of the oscillation velocity, as a result of an increase in the oscillation period, approximately the same attenuation law with distance is observed as in the near region, i.e. $U_{pX} \sim (1/P)^{1.4 \pm 1.8}$.

In such cases, the peak of the longitudinal wave spectrum appears at a frequency of 0.8 Hz. Therefore, since the amplitude of the dominant longitudinal waves is mainly determined by the structure of the earth and the properties of the velocity along the path of wave propagation, the relationship of the main parameters of seismic waves with the shock wave energy and distance does not correspond to the similarity laws in the form of (1.2) and is



organized in the form of (1.11), In particular, based on many observational data, U_r was used to determine the horizontal component of the oscillation rate per second when predicting the maximum oscillation rate at a long distance. $\sim q_0$. δ It was considered appropriate to use the ratio.

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Abstract

The article analyzes the fact that the choice of method for strengthening foundations and foundations, the organization and technology of strengthening work largely depend on technology. Construction practice has proven that the service life of buildings and structures with sufficient maintenance during operation increases significantly and in many cases serves to prevent dangerous breakdowns and accidents. Cases of violation of the integrity of soils under existing foundations are discussed, as well as processes for stopping deformations of buildings and structures that are rapidly increasing over time.

Keywords: foundation, foundation, reconstruction, operation, reliability, technical inspection, strengthening, chemical hardening, physico-chemical hardening, thermal hardening, soil compactor, replacement of weakened soil.

Introduction

During the technical inspection of the constructions of buildings and structures, the actual dimensions, strength and amount of decay of the constructions are determined. In turn, this information is necessary for drawing up a project of strengthening, restoration and reconstruction of the building, and for determining the reasons for the collapse and breakdown of building structures. In the study of research works on the topic, scientific research works of several scientists were established [1-20].

The building and the equipment and communications located in it are under the influence of the external environment. In this case, the soil is affected by the load from the building and its thermal field. Breakdown of technological equipment in many cases causes changes and moistening of the hydrogeological environment of the construction site. If the level of underground water rises due to the uncontrolled flow of water, the strength and deformation characteristics of the soil will change. In this case, it is observed that depressions appear in the sinking soils, and bulges appear in the swelling soils. The process of withdrawing groundwater, which is carried out to ensure the operation of water supply or underground building floors, leads to their decrease. This can cause cracks to appear in the soil massif. In recent years, the number of karst cavities and pits has been increasing. These should be taken into account when designing works to increase the load-bearing capacity of the floors and reconstruct the foundations.

**Methods:**

The main purpose of strengthening foundations of buildings is to increase their load-bearing capacity by artificially strengthening them. For this, in construction practice, methods of silicification and electrosilication, thermal burning, laying of sand-gravel cushions under new foundations are used.

The need to increase the strength of the foundations of existing buildings and structures may arise for various reasons, which include:

- decrease in foundation strength during use;
- incorrect consideration of the properties of the foundation soil in the design;
- increased load on the foundation during reconstruction, construction and mining works near the building;
- the impact of dynamic effects, various emergency situations and other reasons.

The choice of the method of strengthening the foundation and foundations depends largely on the organization and the technology of the strengthening work.

The main reasons for strengthening the foundation and foundations:

1. Reconstruction of buildings and structures is often associated with an increase in loads affecting buildings. An increase in the impact load on the foundations and foundation soil occurs as a result of changes in the technological loads of the foundations, during the construction of superstructures, changes in structural solutions, and in a number of other cases that occur during reconstruction. As a result of the increase in soil pressure, the pressure at the bottom of the foundation exceeds the calculated resistance of the foundation, as well as the load-bearing capacity. Strengthening of the foundations is carried out if there is no reserve of the load-bearing capacity of the foundation soil or the strength of the foundation material.

2. Existence of high physical wear and tear in foundations as a result. The main causes of foundation damage are:

- corrosion of the foundation material under the influence of an aggressive environment;
- violation of the operating mode of technological equipment;
- dynamic effect of equipment,
- overloading of foundations,
- low-quality execution of the foundation.

During the wetting of the foundations under the influence of underground water, especially aggressive, active corrosion processes occur, and as a result, cracks, fractures, crushing, migration of the mixture at the seams, opening of the reinforcement and rapid corrosion appear in the foundation material. Also, it has a negative effect on the destruction of the foundations, the lack of ventilation and the entry of atmospheric rain water into the foundation, freezing and melting, respectively. Among all the disadvantages and damages, the most common is the low strength of the foundation concrete.

3. Decreasing the properties of the base soil due to moisture, dynamic and seismic effects, karst-suffusion events, leads to the formation of unacceptable subsidence and deformations in structures.



4. Construction of new buildings next to existing buildings and structures. Here's what happens:

- additional compaction of the base soil;
- the development of friction that adversely affects the piles;
- freezing of the ground under the foundation;
- washing of the soil from under the foundation;
- displacement of the dowel towards the trench;
- the rise of the soil towards the dug trench;
- from the dynamic effects of unbound soil.

sheet piling, crushing frozen soil or old foundations).

The heavier the building is and the closer it is to the existing building, the greater the compressibility of the soil, the greater the subsidence.

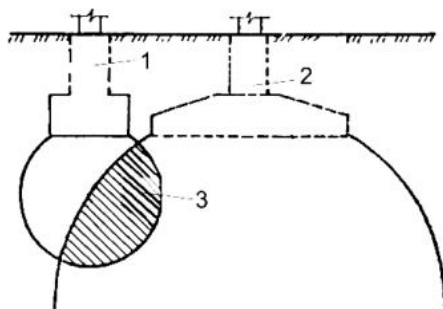


Figure 1 Additional compaction of the base soil. 1-existing foundation; 2 - new foundation; 3 - boundaries of the zones of compaction deformations of the foundation soil.

5. Mistakes made in engineering-geological research, design, construction and use of buildings.

Errors related to physico-mechanical and determination uncertainties during engineering-geological studies. Sometimes, engineering-geological studies are carried out long before the start of construction, and during this period, conditions can change significantly due to a number of reasons.

Errors in design occur due to improperly performed engineering-geological studies, non-observance of project rules in special construction conditions, and failure to fully take into account the influence of operational factors.

Errors during construction include various violations in the construction of the foundation:

- long-term non-operation of open trenches and as a result they are exposed to various effects (freezing, thawing, swelling, softening, etc.), which deteriorates the properties of soils;
- use of low grade concrete compared to the project;
- Arbitrary replacement of construction and materials;
- poor performance of joints and seams.

One of the main reasons for the appearance and development of impermissible deformations in the foundations is the change of the foundation and its properties, insufficient load-bearing capacity.

Strengthening the foundations of existing buildings is carried out in the following ways:

- chemical strengthening;
- physical and chemical strengthening;
- thermal strengthening;
- soil thickener;



- replacement of weakened soil;
- introduction of elements that are unique to the base.

Strengthening the foundation of an existing building or structure during reconstruction allows to transfer loads to the foundation, in some cases, without replacing or strengthening the foundations and without carrying out excavation work.

The essence of chemical methods is that the liquid mixture is injected into the soil through perforated pipes (injectors). The mixture sent to the soil enters into a chemical reaction with the soil and improves the chemical properties of the base.

Chemical methods are divided into two groups, the first includes silicate compounds and their derivatives, and the second includes methods using organic polymers (acrylic, urea, resorcin-formaldehyde, furan resins, etc.).

The most common is the silicification method. As a silicification material, liquid glass is a colloidal solution of sodium silicate.

In one-way silicification, the soil is injected with a gel mixture consisting of two or three components: sodium silicate solutions and a reagent (acids, solutions of organic compounds). As a result of the reaction, the soil is cemented using silicic acid gel.

In double silicification, the strengthening process is carried out by alternately pouring sodium silicate solution and calcium chloride solution into the soil. During the interaction of the solutions, a hydrogel of silicic acid is formed. After injection, the sand acquires waterproofing properties.

Other chemical methods include gas-assisted silicification, ammonification, and resinization.

In order to silicify the base soils, injectors - steel pipes with a diameter of 19-38 mm are lowered under the base of the foundations and the mixture is injected through them under a pressure of 0.3-0.6 MPa. Injectors are placed under strip foundations from both sides, and in cases where the width of the foundation base is wide, the injectors are placed in an inclined position.

During electrosilication, a constant electric current is sent to the strengthening soil, as a result, it accelerates the movement of the mixture that is absorbed into the soil, allowing to increase its amount up to 20%.

The thermal method is used to strengthen loess-like sedimentary soils, in which air flow heated to 600-8000C is sent to the soil through heat-resistant pipes.

Methods such as cementation, restoration of concrete and reinforced concrete flanges, expansion of the base, strengthening with piles are used to strengthen the foundations of buildings and structures.

It is advisable to strengthen foundations made of stone and brick by cementing. In this case, holes with a diameter of 25 mm are opened in the body of the foundation, through which a cement mixture with a composition of 1:1 (cement-water) is absorbed under a pressure of 0.3-0.5 MPa. In cases where cementing is not possible, the foundation concrete and reinforced concrete flanges are reinforced. In this case, the minimum width of the concrete flange should not be less than 15 cm. Reinforced concrete flanges can be restored on one



side or on both sides. Their minimum width is 10 cm, and they are connected to each other with anchors with a diameter of 20 mm.

By increasing the width of the base of the foundation, one- or two-way adjustable banquettes are formed. The width of the banquette should not be less than 30 cm at the bottom and 20 cm at the top. In this method of strengthening, rolled profile steel is also used as various frames, rafters, and load-distributing beams.

The load-carrying capacity of reinforced and reinforcing parts of foundations is reinforced as a result of calculations and based on requirements.

Conclusion:

The method of restoration of new foundations is used in cases where the integrity of the soil at lower levels than the existing foundations is disturbed, as well as to stop the deformations of buildings and structures that increase intensively over time. At present, the methods of creating column pile foundations and placing them under the existing foundations are also being implemented. When strengthening damaged foundations of existing buildings and structures, special importance should be paid to protecting their structures from the effects of underground water. For this purpose, effective waterproofing works are required.

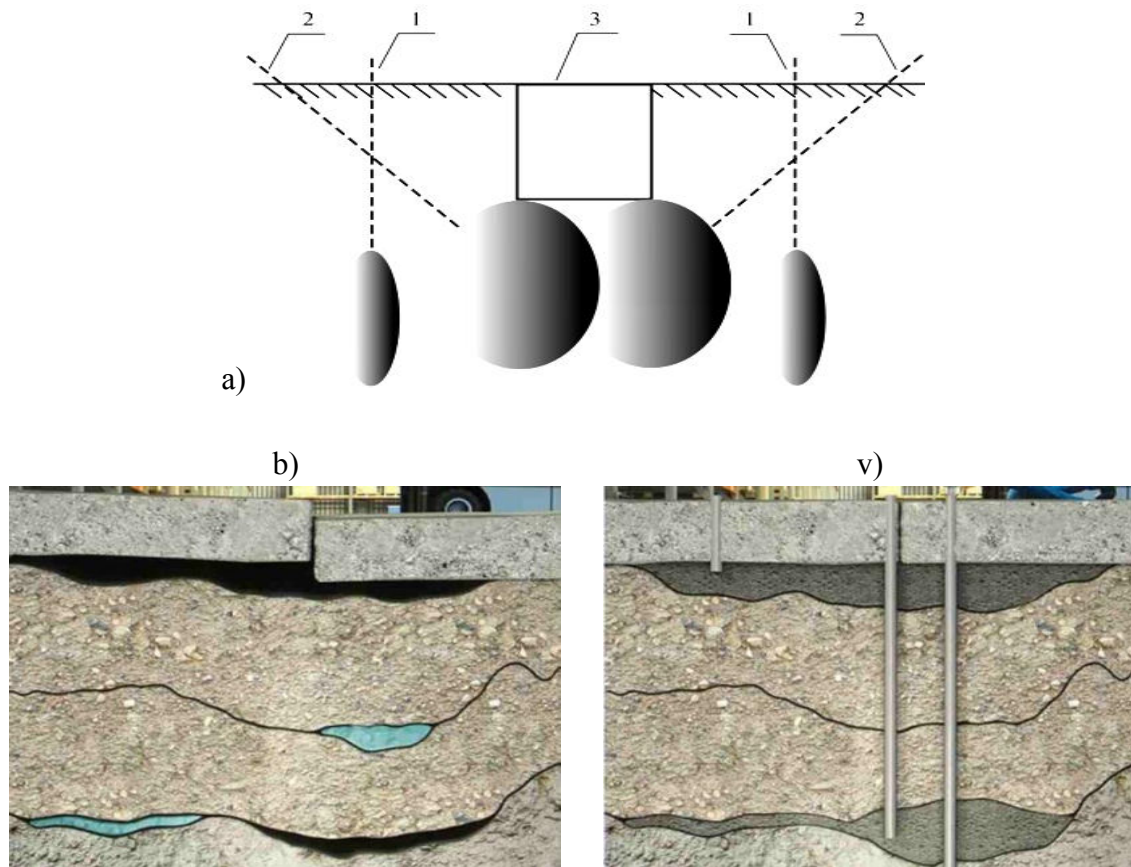


Figure 2. A) step-by-step strengthening of the base soil of the foundation; b) appearance of the foundation until the base soil is strengthened; c) appearance of the foundation after strengthening the base soil: 1 - condition of the injectors; 2 - the main position of the



injectors for strengthening the soil under the foundation; 3 – foundation of building and structure

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**ON THE REDUCTION OF MATERIAL CONSUMPTION AS A RESULT OF THE USE OF HIGH STRENGTH CONCRETE IN CENTRAL COMPRESSION REINFORCED CONCRETE COLUMNS**

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Abstract

The cross-sectional surfaces of compressible reinforced concrete elements are generally assumed to be rectangular. According to the loading scheme, compressible elements are divided into central and non-central compressible elements.

Introduction

If the longitudinal force N acts along the axis passing through the center of gravity of the cross-section of the element, central compression occurs. For some reasons, random eccentricity is formed in the central compressive elements. Therefore, random eccentricity e_a must be taken into account in the calculations. Random eccentricity is not taken into account in the calculation of statically uncertain constructions. But the value of the calculated eccentricity is not taken less than the random eccentricity, i.e. $e_{oN} \geq e_a$.

Compression reinforced concrete columns and supports of industrial and civil buildings, as well as vertical reinforced concrete cores used in buildings with brick walls, in most cases work with random eccentricity. In cases where the amount of load falling on such elements is large (multi-storey industrial buildings, residential and public buildings with 7 or more floors, etc.), durability is ensured by increasing the cross-sectional dimensions of the lower floor structures and increasing the amount of reinforcement. Concretes of class B15-B25 in terms of compressive strength are mostly used in such elements. Theoretical and practical studies were carried out in order to determine the possibility of using high-strength concrete to reduce the material consumption, reduce the cost, and increase the efficiency of reinforced concrete structures operating under the influence of such large loads. It was based on the rules and calculation methods specified in the current construction standards and regulations.

Calculations were made for columns with a cross-section size of 30x30, 40x40 and 50x50 cm. The class of heavy concrete used in this was taken from B12.5 to B45. Calculation of all columns was carried out for the case where reinforcement of class A-III was used. The value of longitudinal force is constant – $N=4700\text{kN}$. The height of the column is also unchanged - 4.8 m.



Calculations show that for columns with a cross-sectional surface of 30x30 cm and 40x40 cm, the concrete class increases from B15 to B45, while the compressive force that the concrete part of the column section can take increases three times on average. In columns with a section size of 50x50 cm, the increase of the concrete class from V15 to V25 leads to a doubling of the load that the concrete part of the column can take (Fig. 1).

The obtained results show that regardless of the class of concrete, the size of such columns does not meet the requirements of 30x30 cm, and the amount of reinforcement is required several times more than the limit values. When the cross-section of the column is 40x40 cm, it is effective to use only concrete of classes B40 and higher. For columns of 50x50 cm, it is appropriate to use concrete of class B20-B35.

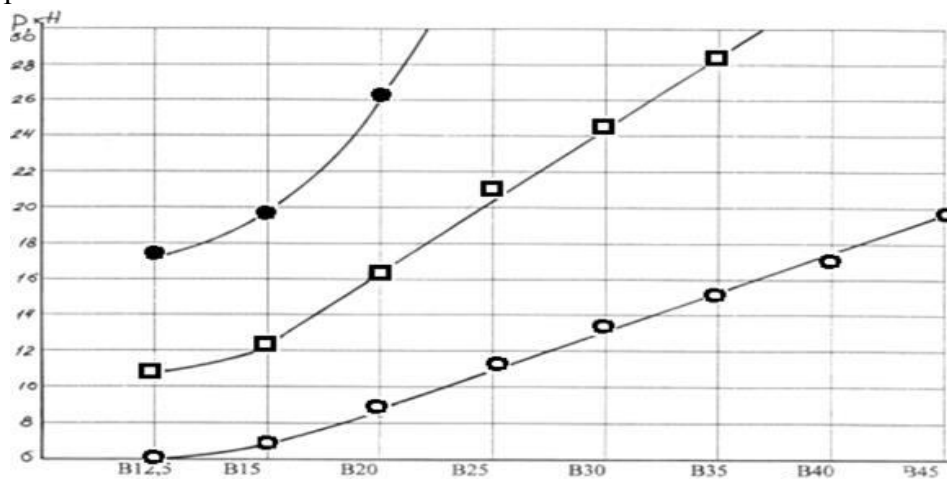


Figure 1. The graph of the change of the compressive load that the section can take with the increase of the concrete class

Approximate calculations show that the use of high-strength concrete can significantly reduce the consumption of reinforcement in columns with random eccentricity, receiving large loads. Of course, to increase the grade of concrete, it is necessary to increase the consumption of cement. However, in general, the cost of the manufactured compressible element is significantly reduced and economic efficiency is achieved.

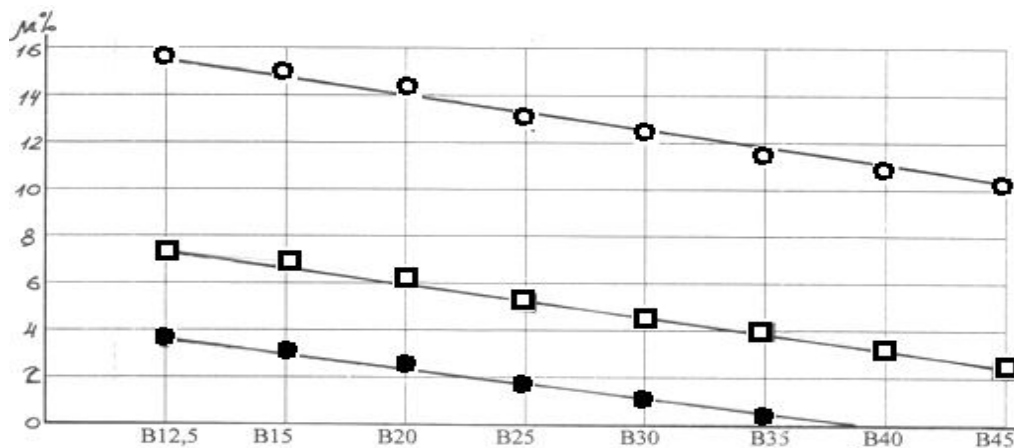


Figure 2. The graph of the influence of the concrete class on the reinforcement coefficient



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**NON-AUTOCLAVED AERATED CONCRETE WITH MICROFILL AND ITS PROPERTIES**

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The paper shows the method of obtaining non-autoclaved aerated concrete with microfiller and complex gas-forming agent. The results of the conducted research on the developed technology of non-autoclaved aerated concrete production, establishment of dependence of basic properties of aerated concrete on the ratio of components in concrete are presented. Improvement of strength, thermal and deformation properties of non-autoclaved aerated concrete with microfiller and complex gas-forming agent based on aluminum powder and polymer additive is shown. It is established that during the manufacture of gas-ash concrete it is possible to observe the main regularities, which are expressed by the law of the general theory of artificial building conglomerates: the optimal structure corresponds to the complex of extreme properties - the most favorable properties of the conglomerate.

Keywords: microfiller, polymer additive, non-autoclaved aerated concrete, ratio of components, strength, thermal, deformation properties.

Introduction

At the moment in the country the issues of thermal protection of buildings and constructions are connected with the production of effective wall and thermal insulation materials, among which the important place is given to the known varieties of cellular concrete: non-autoclaved foam concrete and autoclaved aerated concrete [1].

At the same time, the existing experience of scientific and practical use of non-autoclaved cellular concrete in the country indicates that further development of their production and application should be carried out on the basis of solving the key problems in the technology of their production:

-significant reduction of moisture shrinkage of non-autoclaved concrete; - organization of industrial production of non-autoclaved materials with strength equal or exceeding the strength of autoclaved materials; - maximum use of industrial waste as the main raw material; - use of modern promising technologies of materials processing (helio-thermal processing) [2,3].

This will allow solving the issues of both waste utilization and reduction of production costs of commercial cellular concrete and cellular concrete products.



Method

Non-autoclaved gas-ash concrete was obtained on the basis of complex gas-forming agent[5,6]. The following materials were used for the production of cellular concrete mixture:

- portland cement M400 from Kuvasay cement plant, satisfying GOST 10178-76;
- activated ash from dry extraction of Fergana TPP with specific surface of 3000-5000 cm²/g
- source ash from dry selection of Fergana CHPP with specific surface of 1800-2500 cm²/g;
- gas-forming agent -aluminum powder PAP-I;
- activator of gas release and hardening - water-soluble polymer K-9, introduced into cellular concrete mixture (in the amount of 0,002% of binder weight) together with ash by their joint grinding to the specified specific surface area and used for preparation of water-aluminum suspension.

Consumption of materials per 1m³ of produced cellular concrete mixture for heat-insulating non-autoclave slabs was: Portland cement 110kg; activated (finely ground) ash -160-165kg; initial ground ash -270-275kg; aluminum powder-580-600g.

The technological sequence of cellular concrete mixture preparation was developed: in the mixer of CM type binders (Portland cement with ground ash) were activated with one third of water heated to +400C.

Simultaneously, the remaining heated water was mixed with initial unground ash and water-aluminum suspension in a mixer of CM type. Then the activated binder was combined with the mortar part.

Slabs were formed in metal molds. The size of one cell of the mold corresponds to the size of the slab 40x50x10cm.

Heat treatment of aerated concrete products was carried out in heliocameras of "Hot Box" type construction with a radiation-receiving surface of the installation made of glass profile filled with high-density liquid (food industry waste), playing the role of heat receiver and heat accumulator [8].

Simultaneously with the slabs, control cubes were formed from each working composition of cellular concrete mixture of 10cm rib size 9 pieces each, which were manufactured under the same conditions as the slabs.

The results of compression tests of control cubes made simultaneously with slabs from cellular concrete mix of working composition cured in the same conditions are given in Table 1.

Table 1 Results of compression tests of control cubes using the developed technology

Product type	Date of manufacturing	Concrete component ratio by weight	Water solid ratio	Average dry density of concrete kg/m ³	concrete compressive strength, MPa		
					Sut Pro steam	7	28
Thermal insulation boards	15.06.23	1:1,5:2,5:0,006	0,58	495	7,8		10,8
	23.06.23	1:1,5:2,5:0,006	0,56	510	8,2		11,6
	12.07.23	1:1,5:2,5:0,006	0,58	480	7,6		10,5



Note: The ratio of components in concrete is given in the following order: Portland cement, fine ground ash, unground ash, aluminum powder.

In addition, cubes of the same composition were made according to the technology of cellular concrete mixture preparation known from construction norms - water + dry sand (initial ash) + binders (Portland cement and ground ash) + aqueous suspension of aluminum powder.

According to the results of the researches of the developed non-autoclaved aerated ash concrete the following is established: for all compositions the decrease of average density by 100-150 kg/m³ is characteristic. Replacement of sand in cellular concrete with ash (50 % of the volume and full 100 % replacement), which has amorphous structure and bulk density less than the bulk density of sand leads to a decrease in thermal conductivity. Joint use of ash and polyfunctional polymer additive K-9 reduces the thermal conductivity of concrete by 7.5 %. The value of shrinkage deformations of non-autoclaved aerated ash and concrete on developed комплексном газообразователе находится в пределах (50-75) · 10⁻⁵ м.

Comparative strength characteristics of the developed non-autoclaved aerated ash concrete and aerated concrete according to GOST are given in Table 2. Compositions of aerated concrete mixtures for the manufacture of aerated concrete products with a density of 300-900 kg/m³ are given.

Table 2. Test results of samples of non-autoclaved aerated concrete according to GOST and experimental samples of the developed composition of non-autoclaved aerated concrete

Composition of non-autoclaved aerated concrete with microfillers and additives	Average density, kg/m ³	Compressive strength according to GOST, MPa	Compressive strength of experimental samples, MPa
No additives	300	-	0,32
	600	1,0-2,0	1,80
	900	2,5-5,0	4,98
TPP ash	300	-	0,404
	600	1,0-2,0	2,23
	900	2,5-5,0	5,76
Polymer additive K-9	300	-	0,56
	600	1,0-2,0	2,90
	900	2,5-5,0	14,1
Complex additive: TPP ash, polymer additive K-9	300	-	0,60
	600	1,0-2,0	3,0
	900	2,5-5,0	15,0

Table 2 shows the improvement of strength characteristics of the developed composition of non-autoclaved aerated ash concrete of optimal structure.

Conclusion

The analysis of the conducted researches shows that at manufacture of gas-ash concrete it is possible to observe the basic regularities which are expressed by the law of the stem of the



general theory of artificial building conglomerates: the complex of extreme properties - the most favorable properties of the conglomerate - corresponds to the optimal structure [9].

The use of TPP ash, polyfunctional polymer additive (K-9) in non-autoclaved aerated ash and concrete improves their moisture, thermal and other operational modes, increases durability, saves fuel and energy resources and allows to obtain non-autoclaved cellular concrete, the strength of which is comparable to the strength of autoclaved concrete.

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**INFLUENCE OF HYDROPHOBIZING ADDITIVES ON THE THERMAL PROPERTIES OF LIGHTWEIGHT CASES LOCATED IN AN AGGRESSIVE ENVIRONMENT**

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Abstract

The article deals with the effect of hydrophobizing additives on the thermophysical properties of expanded clay concrete.

Keywords: vapor permeability, sorption, additives, moisture, solution, salt.

Introduction

One of the reasons for the destruction that occurs in the enveloping structures of buildings at chemical industry enterprises is the pressure arising in the pores of building materials due to the accumulation of various salts in them, the salt formula of physical corrosion.

Salt penetrates deep into structures in the form of solutions with moisture condensing on the surface of crystals. The presence of hygroscopic salts aggravates the condition of the enclosing structures, because the sorption properties of building materials are thereby significantly increased.

Chemical analysis of samples taken, for example, from the walls at potash plants, show that the pores of the material contain solutions of salts of sufficiently high concentrations. In some cases, the salt content exceeds the solubility rate. This is the main reason for the decrease in the thermal properties of the enclosing structures and, as a consequence, their durability.

Methods of Analysis

An increase in the resistance of building materials under these operating conditions can be achieved by reducing the possibility of penetration of aggressive solutions into the pores. The works carried out by researchers (1,2,3) have shown that organosilicon compounds of various types significantly increase the durability of concretes and mortars. There is reason to believe that in this case, a positive effect can be obtained by modifying their properties with air-entraining and hydrophobic additives.

For this purpose, the possibility of using organosilicon compounds such as crystalline sodium ethylsiliconate and polyorganoalkoxysiloxane was investigated. Organosilicon oligomers of the type of polyorganoalkoxysiloxanes are the product of joint hydrolysis and



esterification of organochlorosilanes and corresponding alcohols. The molecular structure of these compounds allows them to be introduced into concrete compositions in quantities sufficient to obtain a high hydrophobic effect.

Polyorganoalkoxysiloxanes, due to the presence of active functional alkoxy groups in the molecule, chemically react with calcium oxide hydrate in the alkaline medium of concrete. The neoformation product (polyorganocalcium siloxane) hydrophobizes the surface of the walls of pores and capillaries, and the alcohol released as a result of a chemical reaction acts as a micro-foaming agent. Studies have shown that oligomers such as polyphenylethoxysiloxanes FES have the best hydrophobizing properties. Organosilicon compounds of the ESNK type (crystalline sodium ethyl sipiconate) are plasticizing, allowing to increase the mobility and workability of the concrete mixture, due to which it is possible to reduce the water-cement ratio or reduce the consumption of cement. It has an air-entraining effect, which should contribute to the formation of a structure with a uniformly distributed porosity in concrete (due to closed air bubbles of small size), giving it increased density and frost resistance. It also enters into a chemical interaction with $\text{Ca}(\text{OH})_2$, and the products of new formations, mosaic, hydrophobize the walls of pores and capillaries in concrete.

We have investigated the effect of FES and ESNK hydrophobizing additives on the thermophysical properties of expanded clay concrete used in the enclosing structures of industrial buildings exposed to sodium chloride solutions. To study the effect of additives on the thermophysical properties of expanded clay concrete, samples with $\gamma = 1200 \text{ kg/m}^3$ were made. Additives were introduced into the concrete mixture in the following quantities: ESNK — 0.1% (based on the mass of cement). As a standard, samples were made from expanded clay concrete without additives.

Sorption properties were studied on cubes with an edge height of 30x3x30 mm. To determine vapor permeability, samples with a diameter of 131 mm and a height of 30 mm were made. The tests were carried out in sodium chloride solutions of various concentrations. since this salt does not enter into chemical interaction with the constituents of the cement stone, and the processes of physical. The destruction of the investigated materials is not complicated by chemical ones. The concentrations of solutions were taken as follows: saturated solution (359 g / l), 50% and 10% of saturated.

The studies were carried out on samples of samples of air hardening of sorption and vapor permeability at the age of 3 months. All types of testing were preceded by saturation of the samples at atmospheric pressure and complete immersion in sodium chloride solutions for 3 days. Control samples were not saturated in salt solutions. The determination of the sorption moisture content of saline and control samples was carried out by a standard method. (4)

In contrast to the standard method, the determination of the vapor permeability coefficient was carried out not over water, but over a saturated solution of sodium chloride, which made it possible to avoid moisture condensation in the bulk of the sample under study. The data obtained during the experiment are presented in table. 1 and Fig. 1. It can be seen from them that as the concentration of solutions in which the samples were saturated, the content of

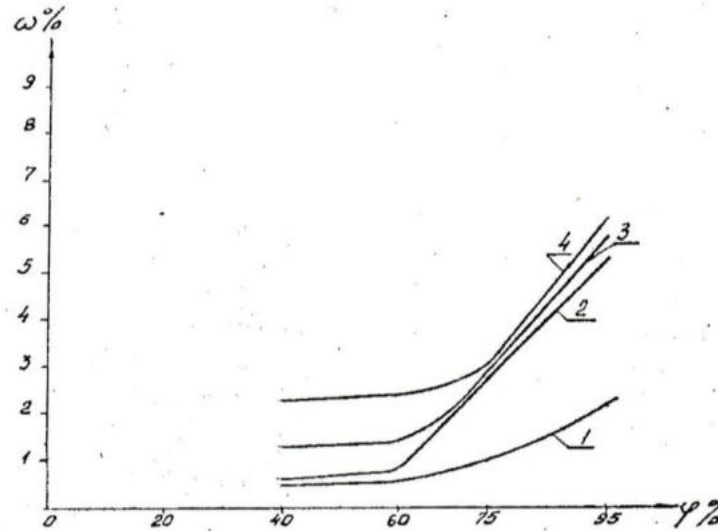


sodium chloride in the latter increases. The introduction of additives of organosilicon substances into expanded clay concrete leads to a decrease in the amount of salt in the dried samples. The difference is especially pronounced in the case of using FES additives. This can be explained mainly by the fact that concretes, in which the oligomer is introduced, have high hydrophobic properties. In this case, the surface at the interface is significantly reduced in comparison with concrete without additives, which prevents the penetration of the solution into the depth of the sample.

The air entrainment of the ESNC additives turned out to be less effective,

Table 1

Sample batch number	Material samples	Concentration of the solution for saturation of samples with sodium chloride (in grams per 100 g of water)	The content of sodium chloride in the sample in% by weight after drying the sample	Vapor permeability coefficient 10 ⁶ in kgm / min.sec.				Sorption			
								Desiccator relative humidity%			
				40 %	60 %	75 %	95 %				
1	Expanded clay concrete	0	0	16,8	2,50	2,92	3,05	5,35			
2		3,59	1,41	13,1	4,33	4,38	4,91	8,57			
3		17,95	3,0	12,38	4,73	4,79	8,34	14,13			



Rice. 1. Dependence of the sorption moisture content of building materials on the degree of salinity with sodium chloride.

- a) expanded clay concrete;
 - b) expanded clay concrete with ESNC additives;
 - c) expanded clay concrete with FES additives.
- 1 - sodium chloride is absent
 - 2 - when soaking in a solution of 3.59% concentration per 100 g of water
 - 3 - when soaking in a solution of 17.95% concentration per 100 g of water
 - 4 - when soaking in a solution of 35.9% concentration per 100 g of water

Notes:



1. The salt content in the test samples is shown in Table 1.
2. Dotted lines show the level of sorption moisture content of non-saline samples.

Research results

But she still somewhat reduced the content of salts in the samples in comparison with the standard. This is apparently due to the ordering of the structure of the solution part and mosaic hydrophobization of the walls of pores and capillaries.

The introduction of organosilicon additives into expanded clay concrete also affects its vapor permeability; as concrete acquires hydrophobic properties, it increases. Moreover, this pattern takes place both in the study of unsaturated concrete, and in the study of concretes that have been saturated with salt solutions.

This phenomenon under conditions of filling the pores of the material with salt solutions should be considered positive for the outer insulating layer of lightweight concrete in the presence of dense vapor-impermeable salt on the inside of the fence, because helps to dry the structure from the outside.

It can be explained by a decrease in sorption by hydrophobized samples and, consequently, an increase in the free section of through pores and capillaries, which increases the vapor permeability coefficient of the material.

With an increase in the amount of salt in the pores of the material, the vapor permeability of the latter decreases, which is caused by a decrease in the free section of the pores and capillaries. Attention is drawn to an increase in vapor permeability with an insignificant salt content (lines 6 and 10), which should be explained by an increase in sorption moisture during salinity. With an increase in the salt content in the material, the process of reducing vapor permeability due to a decrease in the free cross-section of pores and capillaries is predominant.

The data obtained during the determination of the sorption moisture content of concretes is completely consistent with the previous results: as the salt content in the samples increases, their moisture content increases. However, it decreases when additives are added to the composition of concrete. A particularly significant decrease is observed in the case of using a hydrophobizing additive FES. The maximum sorption moisture content of samples with the addition of FES at a salt content of 1.54% by weight, which corresponds to preliminary moistening of the sample in a saturated solution, is 2 times less than the sorption moisture of a non-saline sample without an additive (Fig. 1c).

Conclusion:

The sorption moisture content of the samples without additives with a salt content of 1.41% by weight, which corresponds to saturation in a 10% solution, is 1.5 times higher than the sorption moisture content of a non-saline sample without additives. The introduction of various types of organosilicon additives into the composition of the concrete mixture and mortars during their manufacture is one of the ways to protect the enclosing structures operated under conditions of the salt form of physical corrosion or high humidity. It is more effective to impart hydrophobic properties to the cement stone of concretes and mortars



throughout the structure, which becomes possible in the case of using the addition of polyphenylethoxysiloxane.

The FES additive increases the thermal properties of the enclosing structures due to a significant decrease in sorption moisture, including in the presence of salts.

Significantly increases the vapor permeability of expanded clay concrete with the addition in the presence of salts also plays a positive role, since it contributes to a more intensive drying of the structure.

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**METHODOLOGY FOR DEVELOPING DIVERGENT THINKING OF PRIMARY SCHOOL PUPILS**

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Abstract

This article talks about the formation of divergent thinking of primary education students.

Keywords: divergent, intellectual, concept, identification, Attention, Perception, process of associations, thinking.

Introduction

The law of the Republic of Uzbekistan "on education " No. 637 dated September 23, 2020, PF-60 dated January 28, 2022, "on the development strategy of the New Republic of Uzbekistan for 2022-2026", PF-5712 dated April 29, 2019, "on the approval of the concept of development of the public education system until 2030", fundamentally updating its material education system - the need for national and popularization and standardization of the technical basis, methods of study and training, the implementation of a number of important tasks is essential for this.

MAIN PART

Since primary school age is characterized by its entry into educational activities, the psychological side of educational activity is the process of mastering knowledge by children of different content and varying degrees of complexity, as well as the process of mastering paths. I.Yu.Kulagina believes that this process in small school children is not limited to memorizing individual facts, it is about combining social experience with personal experience, finding subjective and practical parts in each new fact. Thus, in the educational process, there is a constant enrichment of the child's own experience. It should be noted that at primary school age, thinking becomes the dominant task, the transition from visual-figurative thinking described in preschool age to verbal-logical thinking is completed. The main direction in the development of the thinking of a small schoolboy is manifested in the fact that definitions, that is, the disclosure of the content of the concept, become more objective and mediated. Research data, in particular, E. Barnes reveals qualitative changes in the nature of primary school age students among school children. He found that the number of target definitions (by use) was gradually decreasing, and the number of logical definitions of different types was increasing. Also, according to other studies, the number of logical definitions among small school students increases at the expense of targeted definitions. At the same time, the definitions associated with empirically clear material turn



out to be the most perfect, and the definitions of complex abstract concepts are still practically non-existent. After the intended definition, a definition is given by enumerating properties through a general concept. This definition approaches the definitions of formal logic in its composition. According to a number of scholars, this type of definition predominates mainly among young readers between the ages of 7 and 10-11. By the fourth year of study, due to the development of abstract thinking in younger students, the role of definition by example decreases sharply. The thinking of small school children is characterized by the realism of relations, the priority of interest in specific facts of objective reality. Concrete facts are at the center of intellectual interests of younger students, which affects the content and structure of their reasoning. The second stage of its development is associated with these changes: mastering the general relationship between the individual characteristics of concepts, that is, Classification. Small school children can observe the connections between individual elements of the information being mastered, the relationships between concepts, often through visual images and descriptions. By the end of the second phase, most younger students generalize in terms of ideas previously gathered through mental analysis and synthesis. The result of analytical-synthetic activity is abstract judgment or generalized knowledge. Evidence of a significant qualitative change in the thinking of students of a small school at the initial stage of education, at the same time they reveal the boundaries of this new stage of thinking: mental operations do not go beyond the comparison of the nearest facts; complex mediation systems will not be readily available. Working with different concepts of things, phenomena, processes, the thinking of small schoolchildren is thus prepared to realize the concepts themselves in their characteristics and relationships. Thus, at this stage of thinking, the necessary conditions, opportunities are created for moving to the next stage. These opportunities are made possible by the careful mastery of the system of theoretical knowledge in the educational process of younger students. A distinctive feature of the creativity of younger students is the subjective novelty of the product of activity. In its objective sense, "discovery" can be new, unusual, but at the same time, on the instructions of the teacher, according to his idea, it can be made with his help, and therefore, in essence, not creative. In addition, underage students may propose a solution that they have already developed, which is already known, applied in practice, but as a result of the conclusions, without copying the known. In this case, we are engaged in a creative process based on speculation, intuition and independent thinking. Here the psychological mechanism of activity itself is important, in which the ability to solve non-standard, non-standard tasks is formed.

Conclusion

In conclusion, we highlight another important feature of the formation of divergent thinking in elementary school students: it is inseparable from the development of performance skills and abilities. The more versatile and perfect the skills and skills of the students, the richer their imagination, the more realistic their ideas, the more complex tasks the students perform. At the initial stage of systematic education in an educational institution, it has been proven that the different thinking of schoolchildren of younger age directly depends on their



life experience and the manifestation of the student's personal activity in cognitive activity directed and stimulated by adults.

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**DIRECTIONS FOR OPTIMIZING LOCAL BUDGETS IN THE SUSTAINABLE DEVELOPMENT OF REGIONS**

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This article consists of developing a scientific proposal and practical recommendations aimed at improving the medium-term planning of local budgets for the purpose of social and infrastructural development of the regions. Also, as a result of today's analysis of the local budget revenues of Uzbekistan, scientific proposals and recommendations have been formed to further increase them, reduce budget risks and optimize costs.

Keywords: budget, budget classification, local budget, state budget, budget risk, budget deficit, budget surplus, expenditure, income, budget planning.

Introduction

In Uzbekistan, special attention is paid to the financing of local budgets, including medium-term planning, in order to ensure socio-economic development, increase the well-being of the population, and ensure the mutual development of regions. "Further strengthening of macroeconomic stability and maintaining high rates of economic growth, including ensuring that the State budget is balanced at all levels, the national currency and the price level in the domestic market are stable - the most important priority task [1]". In the implementation of this task, in order to ensure the financial stability of the state, full transition to the medium-term tax-budgetary policy, introduction of the "top-down" budgeting approach, strengthening of macro-fiscal control, increasing the responsibility and accountability of allocators of budget funds, it is urgent to implement reforms such as switching to the system of evaluating the effectiveness of budget funds, using fiscal risk assessment modules [2]. Also, improving the legal basis of the medium-term budget, coordinating budget requests for the next year in mid-term budget planning by developing them in accordance with the new budget calendar, "result-oriented budget" of the tax-budget policy. It is important to ensure compliance with the strategic approach of the system, to carry out scientific research aimed at clarifying the powers of the participants of the budget process by approving the limit amounts of budget funds allocated from local budgets.

Regarding the prospects of increasing local budget revenues in the sustainable development of regions, the decision of the Cabinet of Ministers dated August 24, 2020 No. 506 "On approval of the strategy for improving the public finance management system of the Republic of Uzbekistan in 2020-2024 [3]" and other regulations related to this field. This



research work serves to a certain extent the implementation of tasks defined in legal documents.

Literature Review

Theoretical and practical aspects of the budget system and inter-budgetary relations, ensuring financial stability of local budgets, formation of their income, strengthening of tax revenue bases have been researched by foreign and domestic economists.

K. McConnell and S. Brew have shown in their work that taxes appear as a part of fiscal policy. At the same time, they tried to prove that the fiscal policy is either a hindering or stimulating policy, based on the tasks to be solved in ensuring stability in the economy. They wrote in their "Economics" that "The main goal of fiscal policy is to end unemployment and inflation. In particular, local scientists, the research work of J. Esmurzaev on the improvement of the mechanism of collection of local taxes and fees in the conditions of economic liberalization [4], the research work of A. Mamanazarov on the issues of increasing the role of taxes in the stabilization of local budgets [5], the research work of Kh. Qabulov on regional economy and local is devoted to directions of increasing the possibilities of budgets [6]. Also, in the research work of A. Khairiddinov, the ways of ensuring the stability of the income bases of local budgets are justified [7]. In the scientific work of U. Orokov, ways to improve the independence of local budgets were studied [8].

It should be noted that the assessment of the possibilities of local budgets directly requires determining the essence of this concept. Economists I. Zaripova and V. Khafizova in their research interpreted the concept of "territorial financial opportunity" and "local financial opportunity" on the one hand, and the concepts of "financial resources" and "financial opportunities" on the other hand, in the same sense [9].

A. Semenov focused only on the tax activities of the regions in inter-budget relations, and other sources of their opportunities were left out of their analysis [10].

A number of Russian economists have shown that tax policy is one of the types of independent policy that is independent of fiscal policy based on its fiscal goals in strengthening the revenue bases of regions [11].

Also, T.S. Malikov, one of the economists of our country, conducted a study of fiscal policy in the interpretation of "budget-tax policy", and its content is related to "on the one hand, the (reasonable) formation of budget revenues, and on the other hand, the (effective) spending of budget expenses [12]".

3. Research Methodology

Analytical tables, infographics, t-scheme, and local budget indicators of foreign countries are presented as research methods, and these methods serve to explain the topic in a more comprehensible manner.

4. Analysis and Discussion of Results

This issue is primarily related to the stability and strength of their income bases, including tax income bases. In turn, local budgets are responsible for ensuring the stability of tax



revenue bases, firstly, for socio-economic development of the country's regions and for ensuring the interests of the residents of the respective regions, for further improving their lives, for increasing the standard of living and wellbeing, and secondly, for natural raw materials in the region, allows for rational use of production and labor potential and expansion of powers of local state authorities. Ensuring the effectiveness of economic and social reforms aimed at achieving such an opportunity is also directly dependent on their financial foundation. In most developed and developing countries, revenues of local budgets occupy a significant share of state budget revenues. In particular, this indicator is 30% in Japan, 33% in Great Britain, 34% in Austria, 38% in France, 39% in Portugal, 58% in Norway, 60% in Luxembourg [13].

The local budget is based on the medium-term plan, the political processes in the country, the changes that occur in the country as a result of them and their impact on the budget process, budget income and expenses and the factors affecting them, different models according to the level of development of the countries should be developed based on Medium-term budget planning determines the sources of budget revenues for the next financial year, the size and direction of state expenditures, the size of the budget deficit, the amount and sources of external and internal debt funds to cover it, the amount of state debt and the level of inflation.

Table 1 Advantages of medium-term planning methods of local budgets and disadvantages [14]

Method	Advantages	Disadvantages
A method of financial forecasting	It allows to reduce the risk of uncertainty and necessary preliminary provides information	The most important (external and internal) due to different conditions (economic, social, etc.) can lose factors
Financial analysis method	Financial status of medium-term planning of local budgets provides a large amount of information about	It is not always possible to obtain reliable data for analysis complicates calculations
Method of strategic financial planning	To draw up the plan of expenses of local budgets for the future period allows	There is a possibility of sudden changes in internal factors due to external influence
Modeling method	Development of a model of the local budget for the medium-term period	It is possible to assess the financial stability of local budgets that it is not
Export method	The ability to look at the situation more broadly to see a potential solution is more complete than the stated problem get information	The possibility of subjective opinion
How to create a script	Budget for the uncertainty that characterizes any market situation draws attention	Only a few expected project results are taken into account

The economic nature of risk at the stages of the budget process is manifested as a result of the formation of revenues and the implementation of budget expenditures. Budget risk is inherent in the budget process, but at the same time, the parameters of centralized funds of funds largely depend on the management decisions made and the current economic situation. To determine the reasons for the manifestation of budgetary risks, it is necessary to determine the main sources of their occurrence (Figure 1).

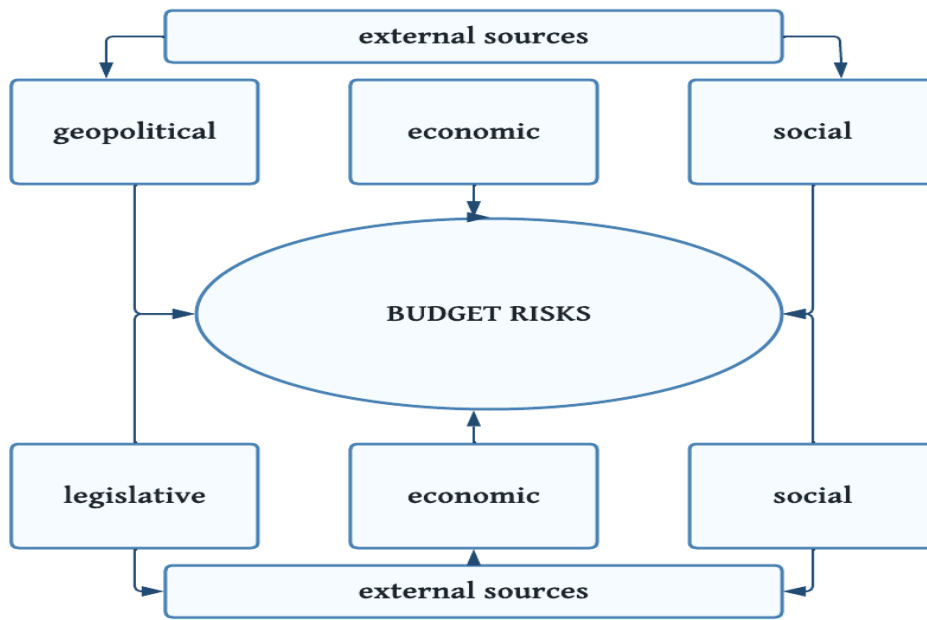


Figure 1. Classification of sources of occurrence budget risks [15]

The internal sources are the budget system itself, including the features of regulatory regulation, the degree of budget involvement in the economic turnover, the procedure for redistributing financial resources, and the social activity of the population. Random sources arise completely arbitrarily and depend to a very small extent on the will of decision makers. These, for example, include natural disasters that are not directly related to human activity.

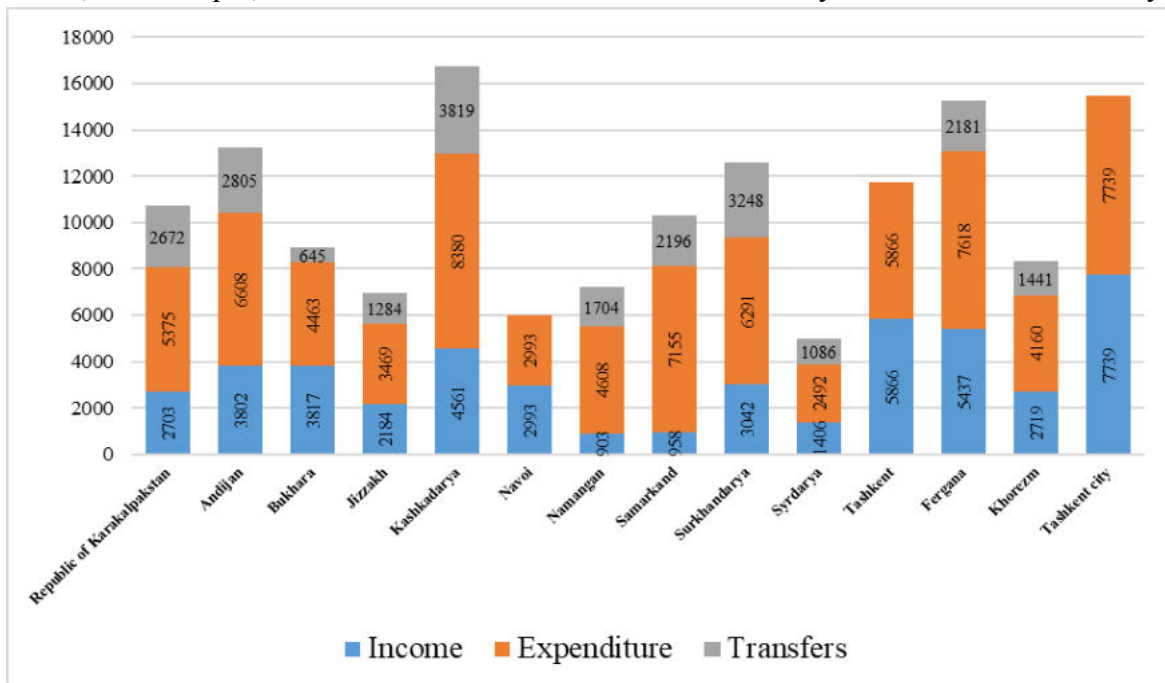


Figure 2. Dynamics of revenues, expenses and transfers of local budgets in the 2nd quarter of 2023 (in billion soums) [16]



According to the author, medium-term planning of local budgets is a budgetary practice based on an institutionally unified system that determines the main tasks of the state budget for the medium-term period [17].

In order to strengthen budget discipline, one of the main conditions for effective and rational use of budget expenditures is strict compliance with the norms of cost control in the austerity regime. For this, it is necessary to gradually reduce other expenses, except for the funds financed from the budget for social, socio-cultural activities, and to put an end to the practice of accepting the expenses incurred in excess of the norm as receivables and payables in the budget reports. Taking into account the material and technical base of the institutions that receive funds from the budget, in order to ensure that the statement of payments made from the personal accounts of the recipients of funds from the budget are reflected in the reports in due time, after the relevant operations of these documents have been carried out it would be appropriate to send the information directly to the budget institution electronically in the treasury and on this basis to achieve timely and high-quality preparation of reports by the budget institutions. In order to ensure operational control over the formation of the state budget and the use of its funds, it is necessary to create integrated information systems within the budget system management bodies within the framework of relations related to their activities [18].

Funds centralized through these budgets are distributed among certain sections of the population. From the local budgets, the branches of the production sector are financed, first of all, the food and local industry, public utilities and services to the population necessary for the livelihood of the population. The financial activities performed by the government and administration, central and local agencies of the Republic of Uzbekistan are carried out in different ways in accordance with the goals and tasks set before them and the powers given to them. Local authorities, governors, councils of people's deputies carry out local financial activities within their powers. The financial activity of local state authorities is to issue decisions and orders in the field of financial issues, to approve and ensure the implementation of relevant budgets, to control and coordinate the financial activities of state agencies, enterprises, organizations in their territory, the relevant administrative-territorial unit social and economic activities that ensure development are implemented in the form of development, their financing, implementation of monetary policy. All state agencies that carry out financial activities, regardless of the level and scope of their powers, work to increase the country's economic and financial power, ensure economic stability and development, and strengthen local finances [19].

5. Conclusions and Suggestions

Based on the ideas covered in this article, it can be said that the implementation of the result-oriented medium-term budgeting mechanism at the scale of local budgets will allow us to solve many of the above-mentioned problems existing in the current budgeting system. In general, the introduction of medium-term planning of the state budget brings us a number of advantages, and we have studied this by studying the practice of organizing result-oriented budgeting and externalizing the medium-term planning of the state budget in the



regions [20].

1. Medium-term planning of local budgets is a way to compare the state budget plan with the calculation of financial resources distributed through the budget for several years, the calculation of the value of current and prospective new state strategic projects, as well as the connection of expenditure obligations with the intended results. determines the practice of the directed state budget.

2. In the development of the medium-term planning methodology of the local budget, it is desirable to form a single methodology that serves national interests by studying the experiences and recommendations developed by international financial institutions, regional scientific research institutions and local centers.

3. In the formation of local budgets in the medium and long-term period, taking into account the scientific proposals and recommendations presented by scientific research institutions and innovation centers, as well as the proposals put forward by the public initiative, modeling (simulator) embodying future perspectives and their financial requirements) should be shown. It is necessary to use the methods of mathematical modeling and econometric analysis, to include the obtained results in the discussion of at least two or three groups of experts.

4. Adapting each reform to the practical process and achieving the expected result is focused, first of all, on the correct distribution of the time factor. Therefore, the full implementation of the practice of medium-term planning of local budgets leads to the change of the initial budget period (budget calendar).

The experience of the organization of local finance in developed countries shows that the delivery of social benefits created to the population (education, health care, science, social protection, etc.) is mainly delivered through local budgets. The scientific proposals and recommendations presented above serve to increase local budget revenues.

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**THE IMPORTANCE OF PHYSICAL TRAINING IN THE UPBRINGING OF THE MORAL NORMS, WILLPOWER AND OTHER CHARACTERISTICS OF THE STUDENT**

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Abstract

In this article, the general education school consists in providing instructions on the moral education of students and will and other qualities of students, formed depending on physical activity.

Keywords: ethics, formation, upbringing, physical education, sports, school, students, **medium**, training.

Introduction

In world educational institutions, innovative technologies for the formation of moral relations of students of the secondary school are being put into practice. Through the means of physical education and sports, systematic practical work is carried out to form the moral qualities of students, increase their creativeness, creativity in the field, develop moral relations of students with a focus on a healthy lifestyle, and improve the model of mental activity. In recent years in our republic, the development of mass sports in the development of a healthy lifestyle among the population, participation in physical education and sports, by specializing each district (city) in certain sports, normative foundations are being created to increase publicity, implement effective and high-quality selection, in particular, to formulate the moral relations of students through the use of advanced technologies of physical culture, it is also very relevant to further increase the effectiveness of the development of physical education and sports in our country, especially the wide involvement of students and young people in sports, the meaningful transfer of their free time on summer weekends, physical education and sports activities.

Purpose of the study:

It consists in the development of recommendations for the formation of moral relations of students of a comprehensive school by means of physical education and sports.

**Objectives of the study:**

Improving the technology for the formation of moral relations of students through the means of physical culture and sports. Improving the effectiveness of the formation of moral relations of students through the means of physical culture and sports.

Subject of research:

In the system of a comprehensive school, the form, method and means of forming the moral relations of students in the means of physical culture and sports are formed.

Object of study:

The process of formation of moral relations of students by means of physical culture and sports is established in the system of a comprehensive school, pedagogical experimental and test work was carried out by IDUM No. 200 of the Chilanzar District of the city of Tashkent, Secondary School No. 8 of the Tortkol District of the Republic of Karakalpakstan and Secondary Schools No. 233 of the Almazar district.

Methods of research:

The study analyzed scientific sources on the topic, didactic materials, educational plans and programs, a comparative study of educational documents. In the process of research, methods of pedagogical observation, comparative analysis, observation of the educational process, generalization of experimental test analysis, conducting social methods (questionnaire-surveys, interview, test), performing experimental testing work and mathematical-statistical processing of the results obtained were used. It can be said that, society has long been separated from each other by its moral criteria and their requirements, in some cases sharply differentiated. These requirements and norms were used in determining, assessing the position, place, level of society. Moral education is the practice of physical activity in solving the necessary problems, such as compliance with them by members of society, sports trainings, various competitions and entertainment events continue to play the role of a tool in the formation, upbringing of moral norms. The feeling of concern for reciprocity, communication, universal values, nationality, people, state, fame was directly brought up in the process of physical education. The morality of a country athlete is the morality of a person of a society in which a representative of this nationality exists. The moral norms of the Uzbek athletes are not special. They are also no different from the norms of morality of an ordinary member of this society. An attempt to formulate an ethics that is the ethics of an athlete leads to the fact that the peoples of the east move away from the norms of ethics. We should consider raising not only those who are short-minded, narrow-minded, who are engaged in sports, who have good bodies of digestion, but an individual with a wide range of thoughts, a spiritually rich, accessible, with good organizational skills. The peculiarity of the unity and commonality of the goal in sports life is the sole legal significance for all, the ability to summarize it in the activities of the team, the history of the physical culture of society, traditions, the strength of the team for the glory of their nation. It is a feature of the fact that the athlete of the country is the decisive factor



in victories in the international arena, being able to feel the duty of responsibility to his people, the motherland. Participation in the work of equipping and re-equipping sports areas of the public domain, sports facility, equipment and equipment in it, social attitude. The most basic of the norms of morality of members of society is the social treatment of labor. The practice of physical exercises creates the possibility of carrying out comprehensive harmonic development in the labor involved, in the production process. It is laborious for an athlete to achieve a sports result and requires hard work. With just updating records, he forms will, discipline, a habit of working for the labor process, learns to appreciate labor. Physical culture teaches to obey the laws of society. The practice of gymnastics, games, sports, tourism and other physical activities requires educators to strictly follow the established rule, order. Disobeying them will keep the athlete or educator away from a common goal. The fact that sports activities leave the life of an athlete under security, for example: the players collided with each other while fighting for the ball. Someone is to blame; you will come to respond to rudeness. But the norms of sports ethics, characteristic of the predominance of moral norms, requirements necessary for the peaceful resolution of self-capture and conflict, Humanism, respect for Man, the ground to fight for the future, for peace, applying each other, helping, especially, the fact that mutual assistance during competitions is extremely high in Turkic peoples in the spirit of respect for their opponents, solid health and physical preparation form the characteristics of the moral norms, will and upbringing of other characteristics of a member of society. In the process of physical education, special tasks of aesthetic education are also solved and established. The upbringing of the aesthetics of circulation, gymnastics, sports, games, tourism, as described above, manifests all the private aspects of a person. The walk of athletes is a process of sports life and beyond, as if it were worth envious of them. Because on its basis lies the moral norms of the peoples of the east.

The technique of movement is beauty, the sophistication of movement, the expression of its meaning is also beautiful. The activity of the movement used in the process of physical education is not similar to one another. Understanding the beauty of movement in sports gives pleasure to the audience or fans. When we can see beauty, beauty in sports wrestling, it shows our aesthetic taste, level of level. Boxing is judged to be not an aesthetic sport. Is this reflection true, the movement of boxers with high technical training gives pleasure to the universe, the universe? In addition, it develops, manifests mental, moral, physical qualities.

The process of physical education in children of school age is what is the basis of physical education for working in school from our educators, it requires knowledge of its content, organization, methodology for teaching children to act. The goal of the physical education process in school-aged children is to gradually bring them to physical maturity and prepare them for life, creative work and defense of the motherland. In the process of physical education of students, general and private tasks are solved. These tasks, together with the tasks of moral mental aesthetic and labor education, which are considered elements of spiritual education, make students grow older. depending on the preparation of the body,



clarifications are included in some of the training skirts. In the natural development of school age, in the elderly, classes, organism will be.

We will have to establish its harmonic development. Attention is paid to the further development of the function of control in the central nervous system, the work of the activity of the movement base apparatus, the work of the heart, vessels, respiratory organs, in addition to which it is taught to be able to properly control the figure. With the addition of knowledge of the rules of personal hygiene to this process, the process of upbringing is established. The task of physical education to give physical knowledge is to introduce rational techniques of movement skills found in life, to provide a little but theoretical understanding of gymnastics, athletics, sports games, and sports tactics. During this period, the preparation of children for the submission of the requirements and norms of the special test of Alpomish and Barchinoy is established. As a result of physical activity, the process of explaining the increase in sports skills, the role and importance of physical culture in society is established. Physical education tools, basic gymnastics, athletics, action games, excursion and travel, as well as games and physical exercises played in nature were taken as the main tools for physical education of children of age. At this age, it is possible to organize regular classes in swimming, tennis. Children with poor health are provided with special training, special training for children in the style of therapeutic gymnastics or allocated to a special medical group. The process of physical education is not one year. It is possible to set the goal of achieving certain results in this direction of education only through classes, classes, the content and organization of which are characterized by different nebulae. In each lesson, separate tasks are solved. The subjects taught, taught before, and then taught are distinguished from one by the fact that they are necessarily connected and structured by certain or fragments of the movement, and are carried out on the basis of the established system. A characteristic of physical education classes is that it is organized by a specialist with special training, on the basis of a program for several years with a content of approximately close to each other in physical development and preparation, as well as on a schedule put into a certain system. Classes are a systematic and relatively economical, effective form of training aimed at establishing General Physical Education, Professional Physical Training and sports specialization. The practice of physical exercises is fundamentally different from classes in that other typical forms of training are their periodicity, non-systematic, only one-time, individuality. Often, the above-mentioned forms of training complement the lesson and play an additional role in completing it private and general tasks.

In conclusion: If this demand is forgotten, it becomes difficult to educate the individual or all attempts end ineffectively. Here follows from this another important feature of the upbringing process – the presence of contradictions in upbringing. These contradictions provide the basis for the origin of conflicts in practitioners between the initial qualities that arise in accordance with their concepts, or between the requirements imposed on those involved and the possibilities of their fulfillment. In preventing the emergence of contradictions in upbringing, the requirements imposed by the pedagogical trainer are



determined by taking into account the age characteristics and capabilities of those involved. Hence, the process of upbringing shows characteristics in itself.

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**" ZIYARAH TOURISM " IN BRINGING ITS BRAND TO INTERNATIONAL TOURISM MARKETS INNOVATIVE MARKETING AND ITS IMPORTANCE**

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Abstract

Marketing activity in international tourism markets is manifested as the main mechanism of effective activity of national tourism enterprises and organizations aimed at gaining competitiveness in world markets. Pilgrimage tourism in our country " Ziyarah tourism " in order to develop the developed work of integrated marketing concept in creating a competitive national tourist product based on the brand and bringing it to the world tourism services market serves the development of the field.

Introduction

" We know that in ancient times , the role of pilgrimage tourism in the mutual economic-cultural, religious and social relations of different regions had its own characteristics and significance. This in turn, served to ensure economic relations between regions and exchange of information and data between countries. In addition, it served as the main tool in the development of cultural values.

As a result of the integration of continents and countries, favorable conditions for communication between civilizations have been created and developed. ¹Uzbekistan with its rich cultural and spiritual heritage, memorial and visual art, historical monuments, and Muhammad ibn Ismail al-Bukhari, Muhammad Musa Khorazmi, Abu Nasr Farabi, Ahmad al-Farghani, Abu Ali ibn Sina, Abu Rayhan Beruni, Ahmad Yassavi, Abu Isa al-Tirmizi, Mirza Ulugg'ek, Bahauddin Naqshband, Amir Temur, Alisher Navoi, Babur, many famous and great ancestors of ours have been attracting world scientists and tourists. This, in turn, shows our unique position and influence in international tourism markets.

According to the results of the analysis, the issues of bringing the national pilgrimage tourism brand to the global tourist markets have not been sufficiently studied. As a result, " Ziyarah tourism " by creating a brand and developing its main principles, it is necessary to

¹ Khudoyarov A.A. Features and trends of the pilgrimage tourism market development in Uzbekistan . Monograph. - Tashkent : Complers Print, 2020.



activate the export of Uzbekistan's rich cultural and spiritual heritage, memorial and visual arts, historical monuments to international tourist markets.

Today " Ziyarah tourism " serves to ensure the harmony and mutual tolerance of peoples, religions, nations in the fields of pilgrimage tourism, religious-educational, education and culture by creating a brand . In addition, further expansion of economic relations, creation of favorable conditions in trade and investment spheres, development of transport and communication infrastructures, and cooperation of scientific research centers are ensured.

Ziyarah t o urism" in the conditions of rapidly growing competition in the global economy create a brand and through the effective use of the integrated marketing concept, it serves to increase our image and share in international markets. Activities related to the

marketing activities carried out in the markets of the international tourism industry are carried out within the characteristics of tourism marketing.

In order to develop pilgrimage tourism in our country, as a result of scientific analysis and research of the unique features of the field, " Z iyarah t o urism" A model for the implementation of the integrated imarketing concept was developed for creating a brand and bringing it to international tourism markets

The implementation of the strategic goal of this model at the level of national and international tourism associations is defined as one of the priority issues. As a result, the concept of integrated marketing implemented at the macro, meso and micro levels in pilgrimage tourism is reflected in the set of marketing activities aimed at adapting the capabilities of tourism enterprises and organizations to the requirements of consumers of tourism products.

In order to achieve the goal, the presentation and realization of tourism products that meet the needs of consumers is aimed at increasing the economic profit of tourist enterprises and organizations in order to satisfy the needs of consumers and strengthen the competitive environment in the market.

Today, in connection with the issues of brand formation in the international tourism industry, the development of a marketing strategy for creating a competitive national tourist product based on the "Great Silk Road" brand and bringing it to the world tourism services market has become an objective necessity for the development of tourism in our country. A.A. ²Eshtoev says.

The integrated marketing concept promoted by us is " Ziyarah t o urism" by creating an attractive image of the country. **aimed at introducing marketing activities aimed at forming positive opinions of** consumers of international tourism products, supporting, coordinating and regulating the activities of foreign partner operators.

According to the analysis of scientific work, the implementation of the concept of integrated marketing in tourism at several levels is considered one of the main important conditions for achieving positive results in the market of pilgrimage tourism. Innovations in the tourism

²A.A. Eshtoev. "Marketing strategy for the development of the tourism industry in the conditions of globalization" (in the case of the tourism network of the Republic of Uzbekistan) Autoreferat. Samarkand 2019.



industry are directly related to information and information technologies. Innovations in the field of information technologies in the world economy are one of the important factors of the innovative development of the tourism sector.

Modern tourist business in the tourism industry today shows development and growth indicators with the active implementation of modern information logistics systems. According to the results of sociological surveys conducted among foreign consumers of tourism products in our country, potential foreign consumers of the tourism market receive the necessary information about the world of tourism and potential of our country mainly with the help of tourism agencies and bureaus, as well as the advice of their friends.

This situation in the development of the tourism industry, in turn, creates a demand for improving the analytical-information system in the pilgrimage tourism market. The marketing information system in national tourism markets consists of a complex of resources and methods in constant, regular action for gathering, analyzing, organizing, evaluating and distributing through appropriate channels the necessary information and information for making efficient and effective strategic marketing decisions. The structure of the marketing information system of the complex of resources and methods in regular operation can be divided into four main links. Namely: internal information system; marketing information analysis system; marketing monitoring system on the market situation; central special marketing research system.

"Ziyarah tourism" brand in the international tourism markets, the activities of the marketing information system in tourist enterprises and organizations are considered as a set of complex actions aimed at the collection of relevant resources and technologies in order to create a complex of information and data in the TRDQ of the aspect and volume required for relevant management decisions in the field. is reflected in the marketing information system concept shown below.

Centralized, systematized information and information on marketing methods and principles in pilgrimage tourism markets can be used by all existing departments to make decisions for work efficiency and management purposes, creating an information environment for all international and national organizations and enterprises.

The marketing information system ensures that all tourist enterprises participating in tourism markets, as well as in a separate organization, become a central mechanism that connects all departments, establishes efficient and effective information movement between them, and ensures the openness, completeness, truthfulness and timeliness of the received information and data. "The final product of the marketing information system in the markets of pilgrimage tourism is a collection of data showing the state of the micro-environment, macro-environment and internal environment of the enterprise and organization in the form of information and database or relevant marketing reports"³

³ Khudoyarov A.A. Basics of tourism and hotel industry . Study guide . - Tashkent : Complers Print, 2020.



Within the framework of the information and information system in the markets of pilgrimage tourism, information movement is observed not only vertically, but also horizontally, i.e. between departments of a single management structure or related to inter-departmental systemic relations. Effective implementation of information exchange relations between participants in pilgrimage tourism markets is one of the main driving forces for the establishment of cooperative relations between international tour operators and tourist organizations .

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I WANT TO TALK ABOUT THE STROKES IN MUSIC

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Abstract

Obtaining basic knowledge, skills, and abilities. Formation of a creatively oriented personality.

Keywords: innovations, repertoire, articulation, creative task, interactive methods, education.

Introduction



In order to achieve something in music (as life shows), the most important thing you need is a great desire. And if you don't have one, is it worth starting at all? Forget about all the bad things, focus on the lesson and be attentive!



What's next?

Have you ever wondered what makes our speech unique, unlike anyone else? And how do we distinguish that we are being made fun of, threatened, caressed with speech, etc.? When communicating, we use different shades of speech, using different techniques. We can speak fluently, languidly, we can be prickly, sarcastic.

It's the same in music. A game without different shades (articulation) is soulless, characterless. Such a game will not touch the strings of the listener's soul. It's like listening to a long, monotonous speech.

Next step.

So, what is articulation?

Articulation refers to different ways of pronouncing a melody with varying degrees of separation or coherence of notes. This method is concretely implemented in strokes.

Strokes, as you might guess, are different. And each stroke corresponds to a certain sign, which indicates exactly how the note should be played: short, long, heavy, etc.

At first glance, learning to play an instrument is not that difficult. It is important to decide on the goal before each case. What do I want? What do you need for this? What's in it for me? Outline tasks. Divide them into long-term and short-term. And step-by-step execution of these tasks. Gradual increase in the complexity of these tasks. And you will definitely master the basics of playing the instrument.

Let's start with the most basic strokes and the most commonly used – strokes. Not a single piece of music, even the smallest one, is complete without strokes.

So, legato (Italian legato "bound") is a coherent performance of music. When playing legato, you should listen carefully to how one sound is replaced by another, to the smooth and even distribution of the sound from tone to tone without interruption or jolting. It is very important to direct your attention when playing legato to the development of the skills of linking sounds without unnecessary movements, pushes of the hand and excessive lifting of the fingers.

In sheet music, the legato stroke is indicated by a league.

Nonlegato (Italian nonlegato "separately") is often used in a moving tempo, with the agitated nature of the music. It is not indicated in the notes in any way. As a rule, at the beginning of training, students play nonlegato. When playing with this stroke, the keys are pressed and released in such a way that there is neither a smooth nor a jerky sound.

Staccato (Italian: staccato "jerkily") is a short, jerky performance of sounds. It is the antipode of legato. The mastery of playing this stroke is to shorten the duration of the sound and to increase the pauses between them without changing the tempo. This stroke gives the work subtlety, lightness, and grace. When performing staccato we use fast and sharp sound production techniques. A finger strikes a note and immediately releases it. This technique can be compared to typing on a keyboard or a bird pecking at grains.

On the staff, the staccato is indicated by a dot above or below the note (not to be confused with the dot to the right of the note, which indicates the addition of half of its duration).

Each of these basic strokes has a number of gradations, which, although not very common, are found in the notes. Let's take a look at some of them.



Portamento (Italian: portamento "transfer") is a way of singing a melody. Sounds are produced in a similar way to nonlegato, but in a more coherent way, emphasizing each note. In sheet music, it is indicated by a small horizontal line below or above the note.

Marcato (Italian: marcato "highlighting, emphasizing") is a stiffer stroke than legato. It denotes an emphasized, distinct performance of each sound, which is achieved through an accent. It is rarely put in sheet music. It is indicated by a checkmark-like sign.

Staccatissimo (Italian: staccatissimo "very jerky") is a type of staccato (sharp staccato). It is played very short and as jerky as possible. A specific feature of staccatissimo is the reduction of the duration of the sound by more than half. It is indicated by a sign resembling a thin triangle.

Staccato accento – even more accentuated, short, jerky notes. It is indicated by dots above the notes, and above the dot by an accent sign.

That's pretty much all I wanted to talk about touches in music.

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**USING INTERACTIVE TECHNIQUES IN THE COURSE OF THE LESSON THROUGH FORMS**

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Abstract

This article will talk about interactive methods used by students using forms to improve the effectiveness of the lesson in the course processes, through which an innovative approach to the educational system will be highlighted.

Keywords: forms, lesson efficiency, interactive methods, educational system, innovation.

Introduction

Currently, Uzbekistan has gained a place in the world arena. First of all, special attention was paid to education in our republic. In his speech at the address of Shavkat Mirziyoyev, a special mention was made about the upbringing of the younger generation. "Another important issue that always makes us think is the etiquette, the gait of our youth, in a word, the worldview. Today the times are changing rapidly. Who makes these changes feel more than everyone else – young people. May young people be in harmony with the demands of their time. But at the same time, do not forget about oneself. Let the call to who we are, what kind of generation we are, always resonate in their hearts and encourage them to remain true to their self. What do we achieve this at the expense of? At the expense of upbringing, upbringing and only upbringing," the president noted. We can see these points as a logical continuation of the views of Islam Abduganievich, the first Prezident of the Republic of Uzbekistan. The work "High spirituality – invincible power makes" the following points about education: "another important life factor that directly affects the formation of spirituality is its close connection with the educational system. It is known that our ancestors from time immemorial considered knowledge, education and upbringing to be the most basic condition and guarantee of human perfection and prosperity of the nation"

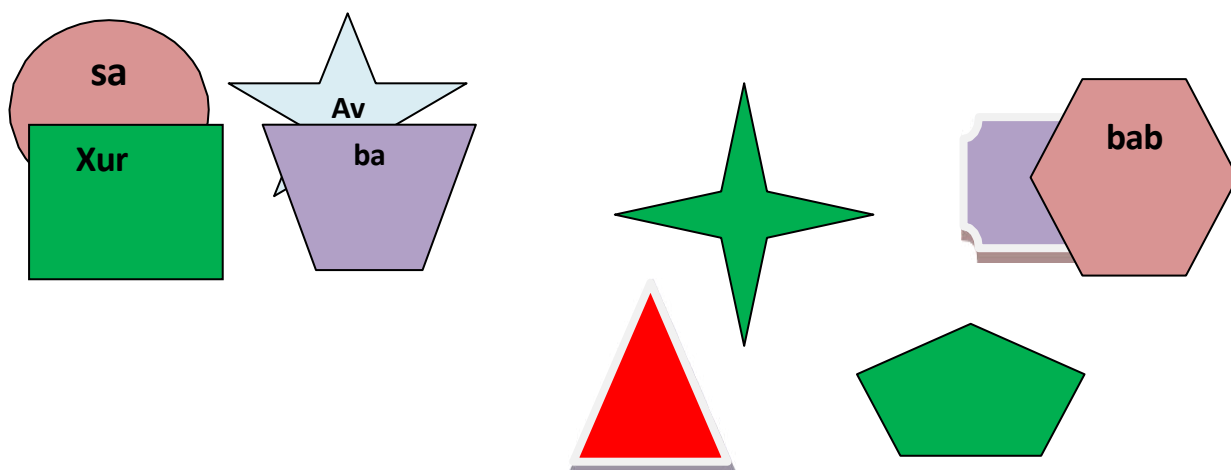
Today, reforms in the educational system play an important role in increasing the knowledge and level of students. An increase in the number of factors affecting students in the course processes, namely education and upbringing, increases the quality of the lesson.

Through the use of interactive techniques in lesson processes, the quality of knowledge in students can be brought to one level. Didactic games encourage students to achieve high performance of doing good, initiative and good performance, accelerate the cognitive and learning process, such as thinking, memory, imagination, activate them. Creates conditions



for the formation of positive motivation for educational activities, which helps to improve the quality of knowledge of students.¹

If we dwell on didactic games and interactive techniques, then we will consider didactic games created from them precisely through forms. Children of younger age have the ability to recognize objects by their shape or appearance, and it is possible to consider the feature of children being more focused precisely in the types of games inherent in the forms. For example, in a native language lesson, the teacher can collect syllables written into different forms during the explanation of the subject of the syllable, cut them into different forms, and teach them to form words. In this, the teacher can simultaneously increase the child's mathematical knowledge and skills through various forms and strengthen new knowledge and skills in native language science through didactic play through integration in the lesson. The transfer of this game on the basis of handouts is also expressed in the following view. Syllables inscribed in different geometric shapes are shown. Students make words from syllables. Given as an assignment to make a word by matching the colors of these shapes in the lower classes, we can give shapes of any color in the upper classes. For example



Magic Square game

Once literacy is complete, the teacher gives each student a "magic square" (5 cm on the side, a square decorated with appliques). This square stands in the reader's notebook. The teacher explains that if children learn to use it correctly, the square will have magical power. To do

¹ I.S.Soliyev, M.Sh.Sodiqova «Boshlang'ich sinflarda orfografik kompetensiyalarni shakllantirish usullari» (o'quv-uslubiy qo'llanma)



this, the square stands above the word, closing the first word of the sentence. Gradually, the pupils push it to the right, opening the first syllable, then the second, etc. Thus, the reader will easily identify the dropped letter. The square slows down the movement of the eye, does not allow it to move along the row, makes the reader more attentive. This simple trick gives good results. Children learn to control themselves and, as a rule, hardly make the mistake associated with dropping letters. Didactic techniques with the participation of forms of this appearance, focusing the attention of children on themselves, make them a lesson process

Who finds a lot of words game

In conditional clarity, we mark vowel letters in a circle, consonants as triangles, and these are found in words composed by these signs. At certain intervals, it is determined who will find a lot of words.



O‘ZBEKISTON

Thus, words are found according to the above structure. As for familiarization with all the above methods and experiments, which are said about working on mistakes, teachers emphasize one sentence: regular and consistent application of them does not give the expected result of referring to them only in the moment or when the topic is correct. Therefore, since our teachers want to improve the spelling literacy of their students, the lifelong truth is that they do not get tired of encouraging them to read art books and should carry out such colorful and modern pedagogical methods as above on a regular basis in the appropriate lessons. Only then do our teachers achieve the happiness of seeing its effect in the fluent speech and error-free writing of their students. In conclusion, when developing the written speech of primary school students, creatively approaching work on mistakes, it is necessary to regularly and consistently apply them in the context of acquaintance with all the above methods and experiments.

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Abstract

The article presents key financial technologies, main financial products and services using Fintech and InsurTech technologies that influence the development and functioning of financial sectors such as insurance activities. The factors stimulating their development and the main changes in this area are identified. Considerable space is devoted to the prospects for their application, as well as an analysis of the problems that need to be solved in order to remove obstacles to their wider distribution by Fintech and InsurTech technologies.

Keywords: insurance, insurance industry, financial technologies (Fintech), insurance technologies (InsurTech), digital technologies.

Introduction

The active development of technology is spreading across all spheres of life. The financial market was no exception - a new promising direction "Fintech", or financial technologies, has emerged. Today, the financial technology market is considered one of the most dynamically developing markets, and it also acts as a driving force for other financial markets.

One of these markets is considered to be the conservative insurance market. The insurance market can hardly be called modern: it has always been conservative and focused on proven solutions that insurance companies initially used. However, the digital transformation of all sectors of financial institutions is doing its job, and the COVID-19 pandemic has become an additional impetus for the transition to online in all financial institutions, as well as insurance institutions. The insurance industry and market are evolving: Insurtech is actively being introduced into the business processes of an insurance company. Insurance market entities are implementing various IT solutions to improve the provision of quality services to consumers in the digital environment, since almost all potential clients of insurance services already use innovative financial products. If we compare insurance with other financial institutions such as financial and credit institutions, then the digitalization of the industry is fundamentally distinguished by its faster and richer applications: they are massively transformed into fintech companies. However, over the past three years, the global insurtech market has grown significantly.



2. Literature Review

The importance of digital technologies in the modern world is increasing every day. Their development has recently led to significant changes. Production cycles were shortened and simplified; Digital technologies have made it possible to expand analytics, making its processing more accessible. In the modern world, the dynamic development of markets is difficult to imagine without the existence of developed technologies. Therefore, by introducing itself into almost all spheres of human life, from the purchase of various goods to education and banking services, digitalization changes the entire economic activity of the country and society (Bikoeva 2019).

According to the definition of researchers David Lee and Kuo Chuen (2015), the concept of FinTech (Financial Technology) - arose relatively recently. Professor Patrick Schuffel believes that fintech is a completely new financial industry, the activity of which is to improve financial activities, in particular banking, through the use of new technologies and developments.

According to Skan Ju., Ryan E. (2019) the modern FinTech market is divided into segments represented by electronic platforms, banking applications, digital security and others.

According to an analysis by McKinsey & Company (2023), financial technologies can improve the efficiency of an insurance company, and there are also opportunities to introduce new methods of delivering services. In addition, there are significant opportunities for data collection and fraud detection, which can lead to better risk identification and mitigation measures.

Currently, insurers use information technology primarily when organizing sales of their insurance services. The transformation of business processes in insurance organizations concerns technological, financial, marketing processes and direct technologies for selling insurance services. The developing Internet environment is not only transforming the appearance of insurance services themselves, but also developing it, expanding the segment of Internet sales or online sales, which allows us to talk about reducing the cost of sales and the growing trend of remote sales (Kozlova 2017).

The use of FinTech and InsurTech allows you to speed up the processes of concluding insurance contracts and simplify communications with insurance agents and selling departments (Turdumambetov 2017).

Insurers are actively mastering mobile digital technologies through the peculiarities of channel competition, joining the fight for the policyholder through a more convenient and understandable recommendation of the insurer within the framework of standard programs and within the framework of flexible and customizable programs aimed at each individual policyholder. More convenient technologies are being developed in business processes aimed at communication with policyholders in terms of support of insurance contracts and settlement of losses of the policyholder (Tepkaeva 2020).

InsurTech – Insure technology is a set of new technologies related to insurance. Insurtech companies are introducing: “big data”, machine learning, Internet of things (Shalbusova 2019).



Insurance Technology is the introduction of IT innovations into the insurance industry. IT innovations usually include artificial intelligence technologies, developments in the field of cybersecurity, analysis of large volumes of data, applications for smartphones, etc. (Zakirkhodzhaeva 2023)

3. Research Methodology

Logical-structural analysis of theoretical and empirical data presented in the public domain was used as a research method. Also, analysis and synthesis, which allow, on the one hand, to highlight individual areas of development of FinTech and InsurTech, on the other hand, generalizing and linking together the main trends of their development. As a result of the study, the particular importance of FinTech in the financial sector, as well as InsurTech in the field of insurance, was identified.

4. Analysis and Results

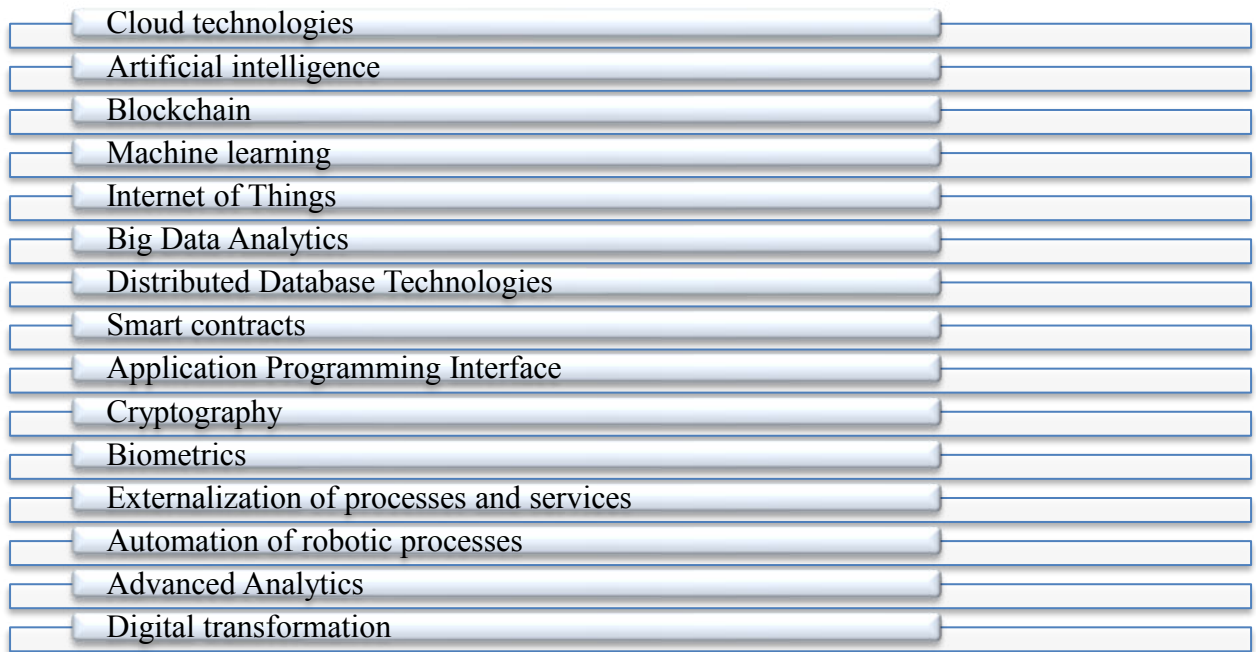
The active development of information technology is spreading across all spheres of life. The financial market was no exception - a new promising direction “FinTech”, or as they say financial technologies, has emerged. Today, the financial technology market is considered one of the most actively growing, and it also dictates the direction in which financial institutions will develop.

According to foreign sources FinTech (financial technology) this is:

- A branch of the economy consisting of companies that use technology to provide financial services in a more efficient way. Companies in this industry are mostly start-ups created with the goal of disrupting existing financial systems and organizations that do not use software products.
- Scope of tech startups disrupting areas such as mobile payments, money transfers, loans, fundraising and even asset management.
- A business area based on the use of software products to provide financial services.

The term “FinTech” itself was coined by Silicon Valley. It was there that many IT projects were created, which later became something of an “accelerator” for modern fintechs. London is now considered the capital of FinTech due to its large number of FinTech innovations and its investment flows.

FinTech as “financial services technological innovation”, including in this definition a combination of products/services (for example, digital retail payments, digital wallets, FinTech credit, robo-advisor³ and digital currencies) and their underlying technologies (Figure 1).



Picture 1. Key financial technologies ¹

The introduction of modern digital technologies will have a huge impact on the insurance market in the next five years. InsurTech is used to obtain information at all stages of the insurance life cycle, such as customer targeting, pricing, product development, and claims processing.

Today, insurance companies are actively exploring the possibilities of introducing new technologies into the company's activities. And many have already implemented a lot of financial technologies that help, simplify and speed up the work of the insurance industry. There are a large number of technologies in the insurance market, but the most used and most promising are the following:

Cloud technologies – the ability to access information and applications via the Internet. With this technology, insurance companies do not need to store information on the hard drive of their computer; workers can access it from any device with an Internet connection. And, cloud technology helps insurance companies save money, improve underwriting, claims processing, fraud prevention, customer service and business operations.

Chatbots are artificial intelligence-based virtual assistants designed to meet the needs of insurance clients. The insurance chatbot is available 24/7 to serve insurance customers every step of the way. Much like an insurance agent, the chatbot asks customers questions about their requirements and other details. Then it offers to customers personalized policy advice, help them compare two or more plans, and help them gain a clearer understanding of policy options by answering any additional questions

¹ Prepared by the author according to research analyses.



Machine learning models are the expression of an algorithm that analyzes large amounts of data to find patterns or make predictions. Data-driven machine learning (ML) models are the mathematical engines of artificial intelligence.

Collection and processing of data from telematics devices and Internet of Things (IoT). The most common use of telematics is in car insurance, so the technology can be described as pay-as-you-drive insurance or pay-per-mile insurance. The basic idea is that you can get a discount on your car insurance if you're safer than the average driver (or if you drive fewer miles than the average yearly).

Robotic automation (RPA) is a software technology that makes it easier to create, deploy, and manage software robots that mimic human interactions with digital systems and software. Like humans, software robots can understand what's happening on a screen, press keys correctly, navigate systems, identify and retrieve data, and perform a wide range of specific actions. But software robots can do this faster and more consistently than humans, without having to get up, stretch, or take a coffee break.

Blockchain is a distributed database that is shared between nodes on a computer network. As a database, blockchain stores information electronically in a digital format. One of the key differences between a typical database and a blockchain is how the data is structured. Blockchain collects information into groups known as blocks, which contain sets of information. Blocks have a specific storage capacity and when full, are closed and linked to a previously filled block, forming a chain of data known as a blockchain. All new information that follows this newly added block is compiled into a newly formed block, which will then also be added to the chain once completed.

Transferring the full cycle of interaction with the client online. In the case of insurance companies, a full cycle of interaction with clients online means that clients of companies can not only issue and pay for an insurance policy online, but also resolve the situation in the event of an insured event.

The development, adoption and use of technology not only opens up an endless number of opportunities for insurance companies, but can also mask a number of problems that many sectors of the economy have experienced in recent years. The main problems of implementing InsurTech technologies include the following:

- || low level of insurance culture;
- || insufficient operational improvement of legal regulation and, as a consequence, a lag in the implementation of technologies;
- || lack of uniform standards to improve the efficiency of online channels of insurance companies;
- || low level of development of financial and technological knowledge among the population;
- || increase in the number of cyber threats and cybercrimes;
- || the costs of implementing technologies exceed the expected income.

Based on the foregoing, we can conclude that every year more and more insurers are introducing InsurTech technologies into their business processes. The technology trends described earlier will fundamentally change the insurance business, creating significant



opportunities. These shifts are already underway, meaning insurers must act now to develop a more ambitious vision for how technology can improve company operations. To harness the potential of InsurTech trends, insurers will develop their technical talent, putting technology trends and their business implications on the management agenda.

5. Conclusion

Currently, the domestic financial and insurance market needs the development of innovative tools, since it lags significantly behind the level of developed countries. This factor should serve as an additional incentive for domestic specialists and attract their attention to create financial innovations in the form of FinTech and InsurTech. This will improve the condition of not only the financial market, but also the entire economy of the country.

But it is worth noting that the digital transformation in domestic insurance began practically from scratch and many operations are still taking place “on paper”; this process is not yet fully based on analytics.

However, it should be noted that insurance, not only in Uzbekistan, but throughout the rest of the world, still remains one of the most conservative and inertial sectors of the economy. And although services related to big data analytics, artificial intelligence and biometrics are now being introduced, changes are still taking place very slowly, innovations are taking root less well, and this industry is still one of the most regulated markets with well-established but outdated operating rules.

When assessing the impact of new technologies on the financial market, two factors have recently become particularly important:

- 1) level of acceptance of basic technology by society;
- 2) the extent and prevalence of technological know-how among the general population

Thus, it can be summarized that modern FinTech and InsurTech tools have a significant impact on the economies of different countries, especially on the banking and insurance industries. They improve the quality of services provided and give impetus to their productive development towards informatization.

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Abstract

The article examines the opinions of the world's leading scientists on the main directions and trends of agricultural financing, the current state of agricultural financing in the economy of Uzbekistan, the volume of investments made in this sector and the absorption of them in the cross-section of sectors, and the development of justified conclusions and proposals for the improvement of agricultural financing. developed and recommendations for application in our country.

Keywords: Agriculture, cluster, foreign investments, investment, resource, enterprise.

Introduction

It is also an important area from a socio-political point of view. Today, due to global climate changes, population growth, and limited land and water resources, ensuring food security is one of the urgent tasks facing all mankind.

Taking these circumstances into account, under the leadership of the head of our state, "rapid reforms are being implemented in our country to achieve quantitative and qualitative changes in the agricultural sector. In the Development Strategy of New Uzbekistan and the Strategy for the Development of Agriculture until 2030, reforming the agrarian sector, and increasing its efficiency by introducing the principles of market relations and advanced experience and technologies are defined as priority tasks[1].

In 2022, within the framework of the goals and tasks indicated in the operational documents of this program, several systematic measures will be implemented, 1 Law of the Republic of Uzbekistan, 2 Decrees, and 10 decisions of the President of the Republic of Uzbekistan on the rapid development of market relations in the field, support of business entities in terms of improving the regulatory legal framework. and 15 decisions of the government were adopted. In particular, the Law "On Organic Products" created legal norms for the production, processing, storage, and sale of ecologically clean organic products. The system of financing the costs of growing agricultural products and purchasing them has been further improved.

Literature Review

In the process of analyzing the literature on the topic, scientific research was conducted by several leading economists and specialists of the world on the main directions and trends of



agricultural financing. Among them, the scientists of our country, N.M.Babayeva focused on the issues of the reforms implemented in the agriculture of the Republic of Uzbekistan and the distribution of investments within the sector, carried out an econometric analysis of their effective use, and gave scientific recommendations on the effective organization of the agricultural economy. A. M. Maksumkhanova discusses the concept of "investments" in her research and reveals the composition of investments in the agro-industrial complex. It determines the investment potential based on a factor approach. The scientist showed the main features of attracting investments to the agriculture of the Republic of Uzbekistan, and analyzed the current state of agriculture and trends in the development of investment activity in the agrarian sector. State reforms necessary to attract investments in the agrarian sector are also considered in the work.

Z.S.Shokho'jaeva, D.O.Boqieva in their research paid attention to the need to "...reveal the role of the credit system in financial support of agricultural producers and develop the state and market mechanisms of credit system regulation."

M.E. Rakhmonov in his article "...issues of increasing the stability and effectiveness of the introduction of digital technologies to agriculture are considered. At the same time, taking into account that one of the global problems, food security, is directly related to the agricultural sector today, it is possible to solve the problems by bringing agriculture to a new level and introducing innovations into the system.

O.I. Rashidov, I.A. Rashidova, M.V. Shatokin analyzes the relationship between investment and gross domestic product using the MNC (multinational corporation) method and provides values for the investment multiplier and accelerator. The time interval between the growth of investments in the regional economy and their return in the form of GDP growth is defined.

Research Methodology

Economic research methods such as analysis of the research conducted by world scientists to clarify in detail the main directions and trends of the financing of the agricultural sector, collection of all information on the subject, comparison, and logical thinking were used.

Analysis and discussion of results

A general condition for restoring the production potential of agriculture, eliminating its economic and technological backwardness. the transition to technical modernization and innovative development is to attract investments in the sector, and the financing process is difficult for most agricultural producers due to the lack of their own funds.

By the end of 2022, the gross product of our country was 888 trillion soums, the increase compared to 2021 is 105.2 percent. The volume of gross domestic product is 80.4 billion. It is equal to the equivalent of the US dollar and has increased by 1.5 times compared to 2018. The volume of agricultural, forest, and fishery products in the gross domestic product is 208 trillion soums or 19 billion. It has increased by 1.7 times in the last five years. Its share in the GDP will be 25.1 percent (29.7 percent in 2018).

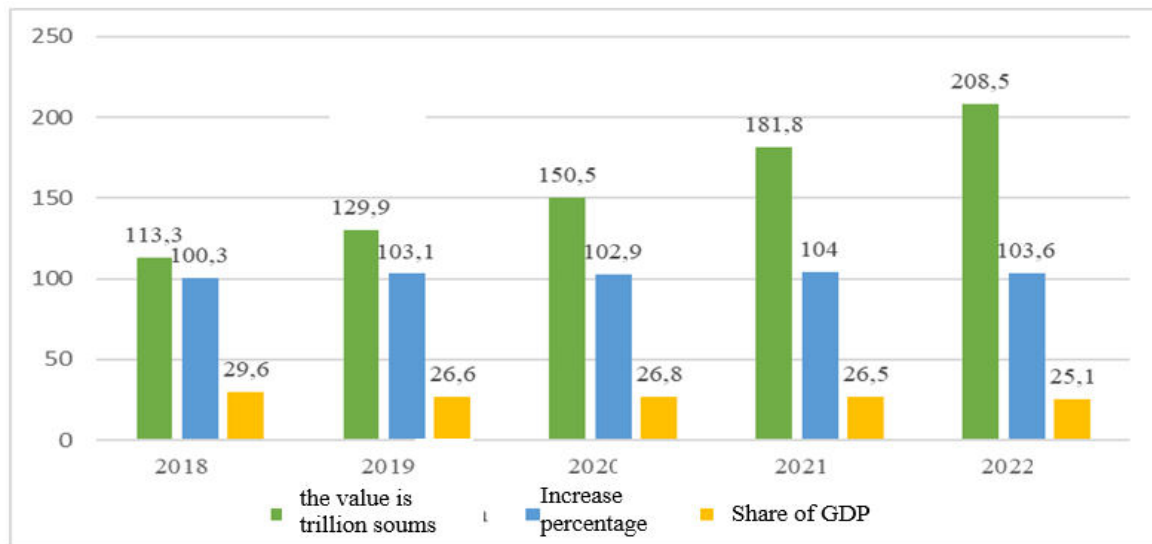


Figure 1. The size of agricultural, forest and fishery products in the gross domestic product¹

The volume of agricultural, forestry, and fisheries products produced in January-December 2022 is 264.5 trillion. amounting to 3.6% compared to the corresponding period of the previous year.

The equivalent in US dollars of the volume of manufactured products is 33 billion. USD and the volume of production has increased by 1.4 times in the last five years.

Of this, 347.6 trillion in Agriculture. Soums (\$31.5 billion) or 3.6% more products were developed.

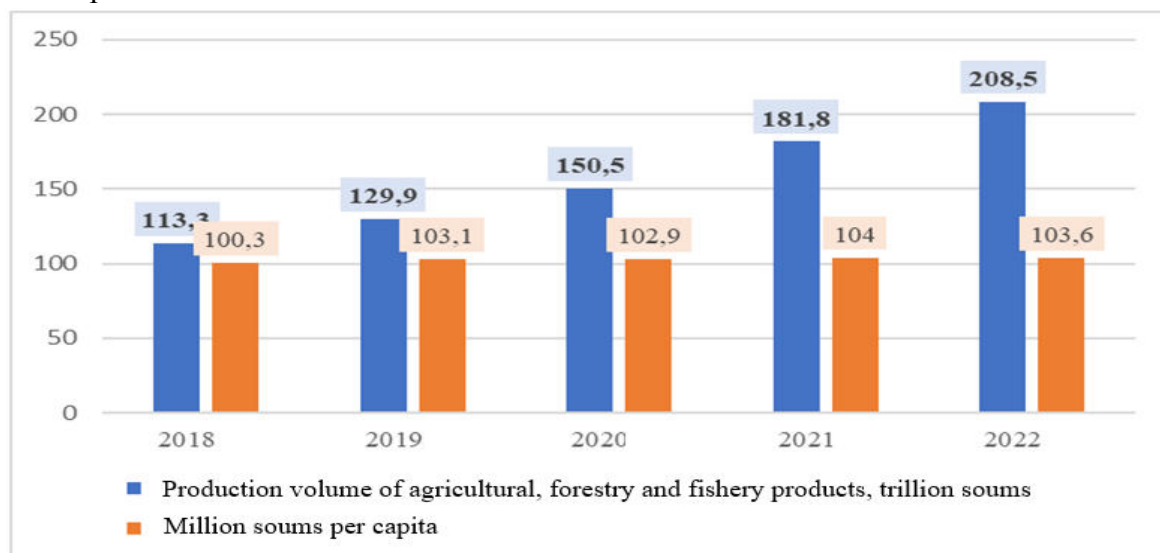


Figure 2. Distribution of production volume of agricultural, forestry and fishery products per capita²

¹ Information from the Statistical Agency of the Republic of Uzbekistan. (www.stat.uz)

² Information from the Statistical Agency of the Republic of Uzbekistan. (www.stat.uz)



The volume of production of agricultural, forestry, and fisheries products per capita is 10.2 million soums (925 US dollars), compared to 2018 (+5.9 million soums; 734 dollars) 1 increased by 6 times. This indicator is good on the one hand and bad on the other. On the positive side, the production of agricultural, forestry, and fishery products is increasing day by day, but the population and their needs are increasing in a geometrical progression, and the cost of production of agricultural, forestry, and fishery products is also increasing. is increasing significantly. On the other hand, it is a pity that we are not taking measures despite the above problems and international practice. In particular, work in the field of seed production, which is considered an important link to food security in our country, increasing the level of mechanization in vegetable growing, policing, and fruit growing, especially expanding the scale of mechanized picking of cotton, public-private partnership in land development the principles of widespread use, the creation of plant varieties adapted to climatic conditions, the use of alternative water saving technologies, the improvement of drainage and water treatment systems and the reuse of treated water in irrigation, the lack of incentive and financial resources for farmers to maintain and improve soil fertility There are problems such as the lack of funds or the fact that budget funds for financing agriculture are not used effectively.

Especially in our country, the policy of optimization of arable land and regionalization of agricultural crops, cluster system, creation of modern greenhouses, and expansion of homesteading practices made it possible to significantly increase the standard of living of the population in the village.

Investments in the agricultural sector of Uzbekistan are one of the most important factors of development, and agro-industry sectors are used: machinery manufacturing industries (the first agricultural sector), agriculture (the second agricultural sector), and processing industry (the third agricultural sector). Among the listed sectors of the republican agro-industrial complex, agriculture occupies a special place, because this sector produces primary products for processing industries and ultimately serves as the basis for its stable operation.

Table 1. Impact of investments on agricultural development³

Years	Investments in agriculture, billion soums	Gross agricultural output volume, billion soums	Agriculture, added value, billion soums	Food production index, %	Agricultural exports, thousand US dollars
2002	102.2	3255.3	2244.2	38.51	140,486
2003	98.5	4083.3	2801.8	41.76	194,784
2004	113.6	4615.8	3242.3	43.61	368,258
2005	138.2	5978.3	4192.8	46.62	431,318
2006	164.4	7538.8	5298.0	52.03	592,249
2007	200.9	9304.9	6550.2	53.7	546,679

³ Asrarovna, R. M. (2023). Financing the green economy in developing countries: a focus on Uzbekistan. *Best Journal of Innovation in Science, Research and Development*, 2(10), 507-511.



2008	261.2	11310.7	7673.0	56.6	400,335
2009	385.9	13628.6	9200.0	61.42	459,742
2010	531	30856.7	21251.3	66.01	689,232
2011	942.5	45285.9	30658.6	70.84	894,713
2012	1089.2	55750.0	36954.7	76.81	639,746
2013	1335.6	66435.3	42636.8	83.27	741,783
2014	1448	81794.3	53613.2	89.15	733,675
2015	1375.5	99604.6	64680.3	96.22	562,049
2016	1646.4	115599.2	74779.0	114.63	746,812
2017	2004.3	148199.3	90983.9	102.93	859543,0
2018	3561.1	187425.6	113660.7	105.03	1081403,0
2019	15141	216283.1	130306.9	104.36	1533268,0
2020	18025.5	250250.6	151250.9	106.28	1481928,0
2021	18934,9	303415.5	183518,5	N/A	1456421,0
2022	19900,0	347600,0	N/A	N/A	1631600,0

In Table 1, it can be seen that in 2002, the volume of investments directed to agriculture amounted to 102.2 billion soums, and in 2010, this indicator increased by 5 times and amounted to 531 billion soums. In 2020, this amount increased by 33.9 times compared to 2010 and amounted to 18,025.5 billion soums.

In 2020, agricultural investments increased by 176.7 times compared to 2002, and the total value of the gross agricultural product in 2020 amounted to 250,250.6 billion soums, which increased by 76 times compared to 2002.

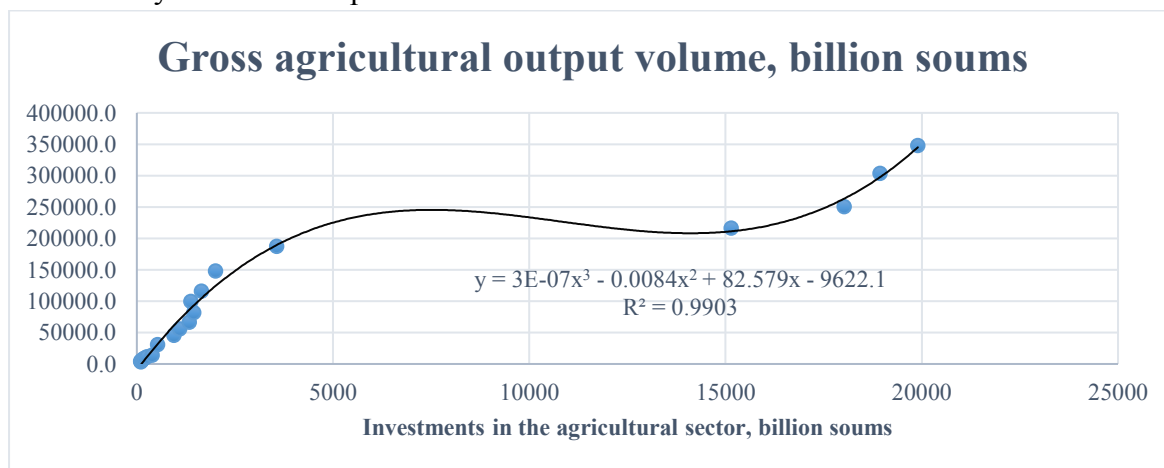


Diagram 1.

Economic model of agricultural gross product⁴

As can be seen from the model in Figure 1, $R^2=0.9903$ indicates a very strong relationship between agricultural investment and agricultural gross output.

The existence of a favorable agribusiness climate in Uzbekistan is very important, it is important for the creation of the added value chain, the wide introduction of market principles in the purchase and sale of agricultural products, the development of quality

⁴ Asrarovna, R. M. (2023). Financing the green economy in developing countries: a focus on uzbekistan. Best Journal of Innovation in Science, Research and Development, 2(10), 507-511.



control infrastructure, the promotion of exports, the production of high-value agricultural products. It serves to make them competitive in the production of food products and international markets. The effect of investments in agriculture can be seen by analyzing how much it is reflected in the added value created. Therefore, Figure 2 provides an analysis of the relationship between agricultural investment and agricultural value added.

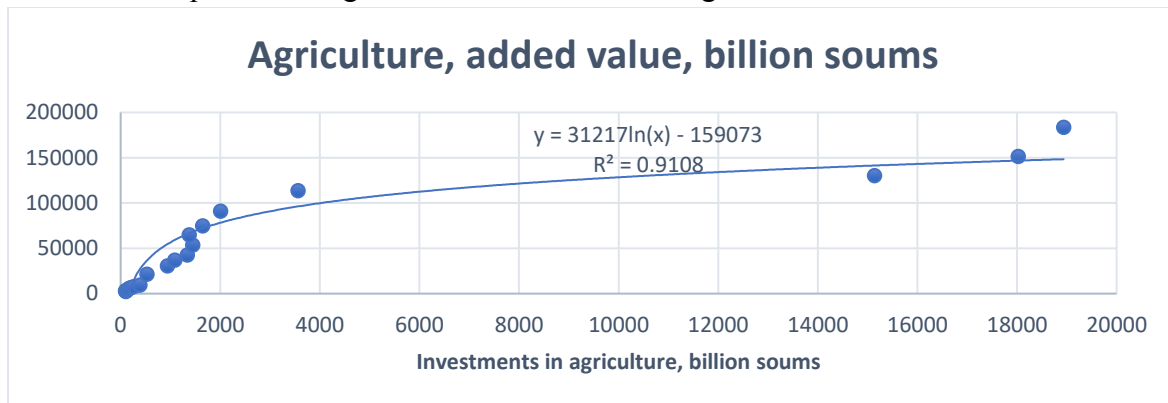


Diagram 2.

An economic model of added value created in agriculture⁵

As can be seen from the economic model presented in diagram 2, a very positive correlation ($R^2=0.9108$) was formed between the investments made in agriculture and the added value created in agriculture. The impact of investments in agriculture on the value-added chain created in agriculture is very high, which means that the more investment in agriculture, the more positive the result.

These and other implemented measures, achievements, future problems, and threats, as well as future plans to solve them, were held within the framework of the international partnership initiative week "New Uzbekistan: Development, Innovation and Enlightenment". The strategy of development of agriculture in new Uzbekistan until 2030: opportunities and prospects" were also discussed at the event.

In particular, at the event, the strategy of agricultural development for 2020-2030 and the following 9 priority directions are being implemented at the event:

- development and implementation of the state food safety policy;
- creating a favorable agribusiness environment and added value chain;
- introduction of mechanisms to reduce state participation in the sector and increase investment attractiveness;
- rational use of natural resources and improvement of the environment protection system;
- development of modern management systems;
- increasing the efficiency of state expenditures and gradual redistribution through the development of network programs;
- development of the system of science, education, information and consulting services;

⁵ Asrarovna, R. M. (2023). Financing the green economy in developing countries: a focus on Uzbekistan. *Best Journal of Innovation in Science, Research and Development*, 2(10), 507-511.



- implementation of programs for the development of rural areas;
- creation of a transparent system of network statistics was recognized.

In addition to the above measures, widespread use of murabahah contracts and leasing agreements based on the principles of Islamic finance in agricultural financing.

Also, implementation of transformation of state administration in agriculture and further deepening of reforms based on world experience. In particular, it is necessary to attract experts from international countries such as the USA, Germany, Holland, Finland, and France and gain experience in the mechanisms of organization and management of agroclusters and cooperatives in the field of agriculture.

Today, it is necessary to reconsider the mechanisms of working together with enterprises operating in the agricultural sector and institutional investors, including insurance companies, commercial banks, leasing companies and foreign investors.

To sum up, today about 50% of the country's population lives in the regions that make up 4 quarters of the economy and about 3.5 million people. Acceleration of relevant reforms in this field, where people are busy, will definitely serve to increase the well-being of the population of our country and ensure stable economic development in the future.

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TEACHING ENGLISH TO ADULT LEARNERS

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Abstract

This paper explores the challenges and strategies involved in teaching English to adults. The demand for English language skills has increased due to globalization, immigration, and international business. Adult learners have unique needs and motivations, such as career advancement, social integration, or personal enrichment. Effective teaching approaches involve understanding their goals and preferences, assessing their level of proficiency, designing tailored activities, providing feedback and support, promoting autonomy and self-directed learning, and using authentic materials and contexts.

Keywords: adults, language, pedagogy, andragogy, ESL, recourses.

Introduction

English as a Second Language (ESL) refers to the process of teaching English to individuals who are not native speakers of the language. ESL is an essential tool for adult learners who wish to improve their English language skills for personal or professional reasons. Adult ESL learners come from diverse backgrounds and may have varying levels of proficiency in English. Therefore, it is important to tailor instructional methods and materials to meet the unique needs of each learner. This may include using visual aids, group activities, and real-life scenarios to help learners develop their speaking, listening, reading, and writing skills in English. The benefits of learning ESL for adult learners include increased confidence, better communication with others, expanded career opportunities, and improved access to community resources and services.

Andragogy refers to the theory and practice of adult learning. It is based on the idea that adults learn differently than children and that they are motivated by different factors. Andragogy emphasizes the importance of self-directed learning, problem-solving, and practical application of knowledge.

The term "andragogy" was first introduced by Malcolm Knowles in the 1960s. Knowles argued that adult learners have a different set of needs and motivations than child learners. He believed that adult learners are more autonomous, self-directed, and goal-oriented than children.

If you are in the education field, you have probably heard of pedagogy. You have probably sat in seminars on the best pedagogy practices. If you are an education student, you have encountered the term multiple times in your classes. But, are you familiar with the term "andragogy"? It is a key term in the education field and should at least be understood by



those who value learning. In this article, we are going to give you a guide to andragogy. We are going to explain what it is, where it came from, and its fundamental tenets.

Andragogy has been applied in various settings, including corporate training, professional development, and higher education. It emphasizes the importance of creating a supportive environment for adult learners, where they can take ownership of their learning process and apply new knowledge immediately in their work or personal life.

Typically, andragogy means the understanding of the science and practice of adult learning. This contrasts with pedagogy, which is the understanding of the science and practice of children's learning.

Andra = adult

Peda = child

In Greek, andragogy means “man-leading” while pedagogy means “child-leading.”

This is what Blake Seufert writes of andragogy:

Typically the learning is very self-directed [e.g. “man-leading”], hands-on, and not very reliant on an instructor or teacher. Often the learner doesn't have the foundation to build upon and will need to learn other dependent skills and assess gaps in knowledge.

The term “andragogy” was first coined back in 1833 by a German teacher named Alexander Knapp to categorize and describe Plato's theory of education.

However, the term is most closely associated with Malcolm Knowles, an educator who had a massive impact on the adult learning field. As Mark K. Smith notes:

As the world becomes increasingly globalized, the demand for English language proficiency grows. Many adults around the world are seeking to improve their English skills for personal or professional reasons. As such, teaching English to adult learners has become an important and rewarding profession. However, it can also be challenging. In this article, we will discuss effective strategies for teaching English to adult learners.

Many new teachers are afraid of teaching adult classes as most of the time you will be teaching someone older and more experienced than you. Don't let this bother you. Remember they have come to learn a skill from you and they are feeling just as insecure about being taught by someone younger. This dynamic makes the classroom a neutral place. You will need to have a different attitude to this class as they are not children you need to discipline. Have the classroom environment feel more like a meet-up of friends, a place to learn from each other and help each other out. Try not to repeat words of praise like you would with younger students as this may sound condescending. Your attitude towards these students must be transparent, open, and honest.

When getting to know them, find similarities between yourself and them. Talk about music, sports, or current affairs around the area which the students may know about or be able to relate to. This gives a sense that you're from the same world. With lessons on everyday English use places, they know as examples. If your students like shopping, ask where they do most of their shopping, mention where you go, and use these locations in your activities. Some good activities are word searches, job applications, mock telephone calls, or ordering goods online.



In conclusion, teaching English to adult learners requires a flexible and student-centered approach. Understanding your students' needs, using authentic materials, encouraging active participation, focusing on practical communication skills, providing individualized feedback, incorporating technology, building cultural awareness, and encouraging self-directed learning are key strategies for effective teaching. With these approaches in mind, you can help your adult learners achieve their language goals while fostering a love of learning.

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Abstract

The article presents data on the biological and economic features of forest gymnosperms, their chemical composition, medicinal properties, and use in the national economy.

Keywords: viscose, silk, cellulose, staple, balm, resin, pine wool, camphor, alcohol, acetic acid, tannic extracts, turpentine, rosin, tar, charcoal, pine essential oil, taiga, *Pinus roxburghii*, *P. wallichiana*, *P. merkusii* and *P. insularis*.

Introduction

The importance of gymnosperms in nature is great. They, like all plants, release oxygen and absorb carbon dioxide, as well as form organic matter. By forming forests, often in cold regions (taiga), they create habitats and food for many animals. Gymnosperms form both pure coniferous forests and mixed forests (together with angiosperms-trees).

Coniferous trees on the slopes of rivers and ravines of Uzbekistan protect the soil from erosion. Conifers are landscape formers. They have a water protection and anti-erosion value. Needles and young shoots form the basis of the diet of moose and capercaillie in winter, many animals feed on seeds of Siberian cedar.

The importance of gymnosperms in human economic activity is great. Coniferous plants provide the bulk of construction wood, are used as fuel, and are raw materials for the woodworking and pulp and paper industries. Viscose, silk, cellulose, staple, balms and resins, pine wool and camphor, alcohol and acetic acid, tannic extracts, turpentine and rosin, tar and charcoal, pine essential oil, as well as foodstuffs and vitamins are obtained from them. Coniferous wood is a good decorative material.

Gymnosperms are also used in medicine. They serve as raw materials for obtaining vitamins, juniper cones are part of diuretic collections. Ephedra is used to produce ephedrine, a drug that excites the nervous system and is used to treat allergic respiratory diseases. In folk medicine, conifers are used to treat tuberculosis, nervous disorders, kidney diseases, bladder, deafness. Cedar oil is obtained from the seeds of Siberian pine.

The economic significance lies in the following, the economic significance of gymnosperms:



- the source of the wood. Gymnosperms account for about 40% of the total forest area in the world. Coniferous trees produce wood that is mostly soft, light in color and weightless. This wood is mostly highly polished and, due to its softness, is very useful for fine art work, furniture and interior decoration.

- Deodar cedar wood is commonly used to make doors, windows, and floors in homes. Laryx, agathis, and taxodium wood are other durable, stable wood species commonly used for the manufacture of railway sleepers, poles, beams, and power transmission poles. Agathis australis is found in Australia.

-resin source: resins are exudates released in the resin ducts of many coniferous trees. Below are some of the important resins and how they can be applied:

(a) Turpentine. They are also known as oleosmols. In India, *Pinus roxburghii*, *P. wallichiana*, *P. merkusii* and *P. insularis* are the main source of turpentine. Turpentine oil is used for liquefaction in the paint industry;

Venetian turpentine is a yellowish or greenish liquid with a specific odor. It is obtained from *Larix decidua*. It is used in veterinary drugs, lacquers and histological preparations;

(b) Rosin: Rosin, also known as rosin, is obtained by distilling oleoresin, the main source of which is species of Scots pine. Rosin is an aromatic brittle solid used in the production of paints, varnishes, soaps, oils, fabrics, plastics, rubbers, adhesives, chemicals and medicines;

(c) Copals: They are a group of solid resins that are obtained from both living and fossil sources. They do not contain oils and give a hard elastic varnish. Manila copal is obtained from white agathis. It is mostly harvested from live trees. Their varnishes are used in the application of enamels and interior work;

- source of paper and cardboard: Wood pulp *Picea smithiana*, *cryptomeria japonica*, *Pinus roxburghii*, *Abies pindrow*, etc. It is used for the production of paper, especially newspaper;

- decorative value. Species of cycad, ginkgo, taxus, pine, thuja, cupressus, araucaria, *cryptomeria*, *gnetum* are grown as ornamental plants;

- Soil erosion prevention: Pine roots extend horizontally for several meters and firmly hold soil particles and prevent soil erosion;

- fuel. Industrial wood waste is used as fuel;

- Stuffing: Pine needles are used for stuffing sofa sets, laboratory samples;

- Linoleum production: Fine sawdust from the woodworking industry is used for the production of linoleum and plastics.

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Abstract

The article discusses the basic principles of the system-activity approach. In practice, various types and techniques of work in this technology are offered.

Keywords: Russian language, innovative training, lesson, student, educational process, distance learning, innovative approach.

Introduction

Innovative approaches to teaching the Russian language are associated primarily with changing the role of the teacher. In modern conditions, it is very important that the teacher does not give students ready-made knowledge, but points out the path to acquiring knowledge and teaches how to obtain knowledge. This is especially important when the teacher teaches Russian as a non-native language. Teaching the Russian language in modern conditions requires completely new, innovative approaches from a language teacher both to the content of the lesson and to the choice of educational technologies, effective teaching methods, and diagnosing the level of proficiency in Russian as a non-native language.

In order for students to work productively in the future and see their results, motivation is needed. In general, motivation must be present throughout the educational process. Its productivity depends on how the teacher skillfully organizes the lesson. But here we should not talk about the one-sided activity of the teacher. The teacher can achieve any positive results only in collaboration with the student. And there should always be feedback. If there is no feedback, then the student will not know about his further actions.[1.85]

Dialogue occupies a central place in the modern lesson. Dialogue in the classroom can promote intellectual development and their learning performance. Conversation is an integral part of student learning. When we enter the classroom, we already enter into a conversation with the students. How you start the conversation determines how interesting the lesson will be. Dialogue can be carried out at all stages of the lesson. When we constantly communicate and talk, a friendly relationship appears between teacher and student. We need to move away from the assessment system where only the teacher evaluates the student.

And such an assessment may be final and not discussed. We can say that it is not always objective. To prevent this from happening, it is very important that the student sees his achievements step by step, analyzes them, and then evaluates his work. The assessment of your classmates and consultants is no less important here. When the teacher alone gives an



assessment, especially if it is a final assessment, self-assessment or the assessment of classmates can always be discussed, and the student will see his “pros” and “cons”.

In order for a student to correctly evaluate his work, he needs to be given evaluation criteria. Then he will clearly imagine how he will work, what result he will achieve, and in the end what grade he will receive, what difficulties will stand in his way, the students will be motivated, they will have an interest in learning, in the subject.

During the lesson, a friendly relationship will develop between the students and the teacher, and the students will always strive to get a good grade. Of course, all this depends on how well the teacher knows pedagogical technologies and different methods of assessing student activity. At school we often use summative assessments. During testing, during tests, and when performing certain tasks, a summative assessment is given. Summative assessment is not always objective. Such assessment is included in the journal and in the student report card.

Summative assessment is used to sum up results, for classification, certification, and recording the progress of learning. And formative learning is used to make decisions that may affect the status or future of a student, teacher or school. And here motivation and feedback are very important. Here we can emphasize the positive aspects of formative assessment: 1. Peer assessment provides the student with real help; 2. The student knows what level he is at; 3. Makes forecasts of its activities; 4. Brings “pluses” to the student’s motivation.

Formative assessment can be used in any lesson. It is intermediate. For example, thematic accounting is also a formative assessment. Students need to get used to this. Formative assessment ensures that the teacher has listened carefully to student responses. Here we give students unlimited opportunities to improve. We want the student to learn voluntarily, independently and creatively. This can be achieved by introducing active forms and methods of work into the educational process.

Thus, we can emphasize the basic principles of the modern Russian language lesson: reliance on the age-related psychological characteristics of schoolchildren; the lesson should be addressed to each student, taking into account the uniqueness and originality of each; priority of developing forms of education: not to give ready-made knowledge, but to teach how to obtain it independently, to see a problem in a linguistic phenomenon and try to solve it; variety of lesson forms, choice of the most effective teaching techniques, methods, research nature of the lesson; a clear structure of the lesson, its plot, the interconnection of all its parts; The lesson can be roughly divided into three parts: an introduction introducing students to the problem; movement of the topic, development, deepening it, allowing schoolchildren to see the multifaceted nature of any language problem; lesson summary, conclusions, correction of acquired knowledge; a variety of forms of questioning, the questioning being organically woven into the lesson and subordinate to its objectives; practicing the norms of expressive reading; bright, figurative speech of the teacher.[2.96]

Only by following these principles will students learn how to learn and, as a result, can become independent, self-motivated, enthusiastic, confident, responsible students with developed critical thinking, fluent Russian communication, and digital competence.



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**MANIFESTATION OF ADHD IN PRIMARY SCHOOL AND PRESCHOOL CHILDREN**

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Abstract

This article discusses the manifestations of symptoms of ADHD in preschoolers and primary school children, their characteristics and age-related variables.

Keywords: attention deficit hyperactivity disorder (ADHD), preschool children, ADHD in primary schoolchildren, hyperactivity, impulsivity, inattention.

Introduction

Children are active, naughty and cheerful. So how do you know if your child has ADHD? What are the signs of ADHD in preschool children? Usually their uncontrollable behavior is extreme. Such children “run, jump, touch everything, they can't sit still, they're constantly on guard and they're different from healthy kids,” says Dr. Steven Cuff of Florida University of Public Health in Jacksonville. “They are often referred to as “active” or “motorized.” Russell A. Barkley of the Medical University of South Carolina describes such children as grumpy and restless: “They can't concentrate on anything for long periods of time” and ignore even bedtime stories. But some children with ADHD focus on things that interest them, such as certain toys or video games. Parents may notice warning signs early, but diagnosis is usually made a little later. Doctors should help parents develop parenting strategies in this regard.

How do the characteristics of ADHD symptoms manifest themselves in primary schoolchildren? Hyperactivity may not be observed in all children with ADHD of primary school age. And if there is, it will manifest itself during school years. They may have other symptoms. They cannot concentrate and have difficulty making good decisions or planning things. “As these symptoms become more complex, the severity of the disorder may become more severe” says Barkley. They are also more likely than other children their age to have the following problems:

- Sharing
- Taking turns
- Letting others talk
- Finishing homework or chores
- Keeping track of things like homework and books



“Additionally, a child with ADHD is more emotional” says Barkley. If something upsets them, “we need to carefully observe how this dissatisfaction manifests itself.” If you say that you will go to the cinema with them, they will ask about it non-stop. There are no specific tests to diagnose ADHD. Most children have some symptoms, but “to be diagnosed with ADHD, symptoms must be present for at least 6 months and affect the child’s social life and academic performance” says Cuffe. Parents regularly turn to doctors for treatment of their children. Treatment often includes medication and behavioral therapy.

When does ADHD peak? An earlier study found that ADHD symptoms often increase in children between 6 and 8 years of age and gradually decrease by age 11. Symptoms of hyperactivity and impulsivity are likely to decrease with age, while symptoms of inattention remain relatively unchanged. This is especially true for those with predominant symptoms of inattention, which are less disruptive and severe than impulsive/hyperactive symptoms. Girls and women in particular are more likely to have the inattentive type of ADHD. This often means they are diagnosed later in life. Research shows that because these symptoms are less visible, girls develop coping strategies to help hide their symptoms. Although children can manage symptoms successfully, the teenage and adult years place increased demands on ongoing attention, planning, organization, and self-control, which can make managing ADHD increasingly difficult. People who are diagnosed as teenagers or adults may feel relief from the diagnosis, which explains a wide range of problems throughout life. It is especially helpful to know that there are both medical treatments and strategies that can have a positive impact. Additionally, having a diagnosis can open the door to helpful conversations with parents, friends, and partners.

Does a person diagnosed with ADHD get worse with age? Symptoms may affect adults differently, but they usually do not get worse with age. Adults also have more skills and resources to manage their age-related symptoms. Although ADHD symptoms often change with age and may become less severe in adulthood, the condition does not go away completely. Although researchers know little about why ADHD persists in so many people, evidence suggests that early diagnosis and treatment can improve outcomes.

ADHD is often a lifelong disorder and its manifestations change as it develops. Fortunately, by adulthood, 1/3 of children no longer have symptoms of disability and their functioning remains relatively unaffected. Research has identified predictors of functional outcomes across the stable and developmental stages of ADHD. In addition to genetics, there are early developmental factors that increase the risk of ADHD. Preschool symptom severity, cognitive functioning, and family problems appear to be important predictors of school-age outcomes. They continue to predict long-term outcomes in school-age children, with comorbidities emerging as another important predictor of long-term outcomes at this stage. Clinical practice for the treatment of ADHD should be developmentally sensitive and may include:

- optimal antenatal practice;
- trainings for parents of preschool and school-age children; pharmacological or multimodal treatment during school years;
- and a combination of medication and cognitive behavioral therapy in adulthood. ADHD is a lifelong condition and requires ongoing treatment for optimal long-term outcome.



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**LESSON OBSERVATION STAGE (PRE-OBSERVATION, WHILE-OBSERVATION, POST-OBSERVATION)**

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Abstract

Classroom observations in school are an important tool for gaining an overview of patterns and trends, capturing the difference between what is said and what is actually done. It can form a good basis for continued development and improvement work. Research shows that there is a clear connection between the development and further training of teachers' professions and students' learning. You can use the initial meeting to introduce yourself to these people and to explain to them the purpose of your observation. In the context of this discussion, you can find out what their expectations are, and you should also help them to understand what your needs are. The school might have hosted teachers such as you in the past, so they might have some pre-conceptions about what your role is; or you might be their first visitor. Either way, it is important to go over these details, to ensure that there are no misunderstandings.

Keywords: fundamentally, monitoring, traditional, technology, learning, teaching, development, difference, example.

Introduction

A key monitoring activity of leaders in Primary Schools has long been termed lesson observations of teachers operating in classrooms and then providing feedback that is intended to improve practice and the quality of teaching. Peer observations and giving effective feedback are highly sophisticated skills of effective teaching, and many leaders, not just those newly appointed to the role, or aspiring to take on the role, require coaching in the art if their time is to be used as effectively as it might be, i.e. for the specific purpose of improving teaching practice and through it the quality of provision for all pupils¹. For too long, lesson observation policy has been plagued by the need to make and communicate judgements in the name of accountability. In my experience, those who feel they are being judged during peer observations, criticised and subjected to the opinions held by others are naturally resistant and defensive, and it becomes very difficult to open up and explore with them what, in their observed practice, worked well or otherwise in an open, non-threatening manner [1].

¹ <https://www.structural-learning.com/post/lesson-observations>.



However, conversely, when professionals feel supported and trusted during structured teacher observations and can engage in low-stakes exploration of their real-life classroom challenges, they are more open to new possibilities and the idea that they can change for the better. They are much less likely to feel the need to mask their difficulties or deny the need for change in their approaches. It is with this firmly in mind, that I strongly advocate, a coaching model that adopts a problem-solving paradigm, and seeks to develop the mindset required to ditch judgemental thinking and language once and for all. It is a model based upon professional dialogue that essentially recognises that what is going well, and probes those less-effective aspects, perceiving them to be problems that can be resolved by solutions arrived at collaboratively.

We can delude ourselves, as experienced observers giving feedback, that the teachers will be motivated by what we say, and seek to improve their practice as a result. Sadly, this is often not the case with the traditional model. It can feel a bit like “chucking peas at an advancing tank, trying to get the driver to change direction”! The drivers themselves need to be involved. The reality is that any observed lesson is just a snapshot of a larger picture, and all an observer should do is focus on what they see, ask questions of the teacher subsequently, and above all, avoid making assumptions.

Essentially, there are no good, bad, weak or strong lessons, and no observed teacher should be judged to be better or worse than any other in the classroom. There are simple problems with learning that occur in the changing contexts within which each teacher works on a daily basis; problems that need to be solved. The role of leaders in English state schools is to support their teachers, to offer insights into what they themselves observe, and then to help the individuals to problem solve. When I work in English state schools as a coach to develop effective practice, it is either to coach the teacher being observed or to coach a leader to improve their formal lesson observation and feedback skills in their monitoring role. Teachers whose classrooms are the focus of the classroom observation should be very clear about which of these two purposes is the focus [2].

As a general rule, I don't ask “How do you think that went?” It is in my experience a recipe for disaster, and encourages people to defensively give excuses for things that went wrong, or to mistakenly overstate the success of the lesson. Be honest; if it was a bit of a disaster or disappointing, say so up front, for example say, “Well, we both know there were a few problems there, so let's see what we can do about them. In the context of lesson observation models and providing feedback to teachers that is designed to improve their effectiveness, leaders in schools need to rethink their roles. Instead of setting out to judge how good the lesson or the teaching is, and where on the scale it should be placed, they should think about and discuss openly how this could be made better, and create the conditions where no one judges, they are there to help. Only then will this important monitoring activity be regarded, as it should be, as a supportive, non-judgemental ingredient in a healthy diet of professional learning.

Furthermore, despite Ofsted's efforts to clarify that they don't expect schools to imitate their procedures and that they have stopped grading lessons, school headteachers and leadership teams continue to use lesson observations to evaluate teachers' performance. Below I



discuss 5 problems with lesson observations used to evaluate teaching performance and offer some thoughts on how they could be used to encourage improvement. The practice undermines teacher professionalism and can easily be used as a mechanism of intimidation. Openness and objectivity are difficult to achieve through this process. Teaching is fundamentally relational and the dynamics that individual teachers bring to their lesson practices are as complex as each of the students they are working with. It takes time for teachers to understand their students and for their students to know their teachers. Much of the effectiveness of a teacher depends on the ways learning relationships develop over time. However, many factors within the culture of a school can undermine the bonds of trust and mutual respect necessary for benign learning relationships to flourish. These are often outside of the control and responsibility of the teacher. The good judgement of the daily choices teachers make in how they address, manage, encourage, support, instruct, direct and motivate their students is impossible measure through one isolated lesson observation. Despite this, observers assess the quality of a lesson and thereby call into question the professional conduct of a teacher. This process does nothing to foster and stimulate the development of better pedagogical wisdom [3].

Lesson observations add pressures on teachers which inhibit their intuitive decision-making in lessons. Not being able to read students' minds, lesson observers are reduced to identifying whether teachers are using 'good' teaching techniques and methods. Although it may be appropriate and advantageous to use these at times, when there are lesson observations as part of inspection and quality assurance processes there is increased pressure to use them on occasions teachers would not normally consider them appropriate. In this way, teachers' professional judgement is further undermined and a conformity to models of lesson delivery is imposed. Observation criteria, checklists, 'indicators' and evidence of 'good practice' may be worth discussing with a teacher but not in terms of "what you didn't do". If excellent teaching could be reduced to these techniques, robots could be trained to manage classes. Again, the interactive and relational aspects of learning are wholly ignored. The document where this quote came from went on to state that, "Every teacher needs to be given both the time and tools to think about their own individual part in the educational enterprise". However, rather than adopting the approach to professional development recognised and taught as the most effective means to enhance effective teaching, resources are spent in unhelpful lesson observation inspections. Many schools think they are imitating Ofsted and continue to evaluate teachers through ill-conceived policies of observation and measurements of students' performance. Why cannot the money spent on this regime be invested in giving teachers time to do what educationalists and academics advocate for professional development? It is ineffective and inefficient, I have failed to find any academic studies to support the positive value of this approach in terms of raising the quality of teaching and learning outcomes. Lesson observations tend to ignore or frown upon many teaching practices that in the hands of a good teacher are key to effective pedagogy. Linked to this, teachers need to feel they can talk to senior colleagues within judgement about the challenges and difficulties they are facing. They should also be encouraged to talk openly with their students about their own learning, how the students are finding the lessons and



activities. What matters most is that teachers want to continue to grow and develop, they listen to others and reflect on their work. Processes can be put in place to record this self-directed activity. In the right environment, what becomes worrying is silence and inactivity. This is easier to evaluate than trying to make subjective lesson observation judgments appear objective [4].

Finally, lesson inspection regimes are simply bad business. Learning Inventory, originating from pioneering research at the University of Bristol, confirms Pink's argument. The model of school inspection and internal quality improvement policies we need is one that recognises and values professional trust. In a learning school culture, teachers can grow and develop in understanding, their pedagogical craft can improve and the quality of teacher-student relationships can strengthen. But evaluation of individual lessons is no way to encourage these things and no way to show recognition for the complex and difficult job of teaching.

I am happy to acknowledge that several elements have been shown to impact student outcomes either strongly or moderately. These include: Content knowledge - effective teachers have deep knowledge of the subjects they teach and understand the ways students think about that content, these inform their classroom practice; quality of instruction – this includes good questioning and use of positive assessment methods, reviewing previous learning, providing model responses, giving time for students to practice application of skills; creating a learning climate – teachers' classrooms are characterised by a sense of by demanding yet supportive, students' success is attributed to their effort rather than ability and resilience is encouraged; and classroom management - teachers make efficient use of lesson time, use resources and space wisely, and positively manage students' behavior [5]. However, I think when we really look at these, it would be pointless creating a checklist to see if they are all done in every lesson observed. The fact is that in general good teachers do them but not necessarily by specific actions lesson by lesson. Some teachers seem to be able to create positive outcomes despite clear evidence of their subject knowledge or ability to manage behaviour consistently well. These are statistically 'proven' things but not a divinely ordained model. They might be helpful as discussion points but not as rulers by which a teacher's quality is measured in one or two lessons observation. Recording lessons in one way or another and using this to evaluate teaching has become popular in some places.

Advocates claim that this removes the potentially unknown variable of an observer having to be in the room. It also allows several lessons to be viewed and consequently sequences of lessons. There are potential benefits to this approach but not as a strategy for teaching evaluation. With so much data, what method of analysis could be applied that fairly represents the reality of teacher's pedagogical qualities? However, if a colleague or senior teacher identified 5 things they think evidence good practice and 3 things that they have questions about, then the strategy could stimulate positive professional reflection. Classroom observations in school are an important tool for gaining an overview of patterns and trends, capturing the difference between what is said and what is actually done. It can form a good basis for continued development and improvement work. Research shows that

there is a clear connection between the development and further training of teachers' professions and students' learning [6].

Many believe that continuous classroom observations, in order to develop the teaching, provide in-depth pedagogical discussions between teachers-educators. In the end, it probably also leads to a safer work climate where you as a teacher feel the support of colleagues in the various situations that arise in the meeting with the students. You should never see observations as a test of your teaching ability.

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**THE CURRENT STATE OF INTERNATIONAL TRADE OPERATIONS AND
WAYS TO ENSURE BALANCE IN OUR COUNTRY**

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Abstract

The article discusses the opinion of researchers in the field of international trade operations over the countries, methods of payment export and import operations, experience and practice in the development of international trade in developed countries. Factors stimulating their development and obstacles hindering the development of international trade operations also have been identified in Uzbekistan.

Keywords: export, import, international trade, trade balance, international payments, regulation of international trade.

Introduction

According to the experience of developed countries, international trade operations are one of the main links in ensuring the development of the country's economy. The expansion of the economy's use of innovative scientific and technical achievements, the increasing need of countries for international labor migration, reveals the need to further strengthen the integration of the world economy in international trade activities. The most important point of this process goes back to the export-import operations and is manifested in their implementation. Expanding the volume of export-import operations and ensuring their balance in the further strengthening of Uzbekistan's integration into the world economy is gaining importance in the international economic relations of our country.

In recent years, as a result of expanding the volume of international trade operations, focusing on the production of quality products with the involvement of new scientific and technical achievements, deficiencies in the management of international trade operations are observed, and the deficit of the trade balance is increasing sharply. In particular, in 2018, this indicator is 5448.5 million. amounted to USD, and by 2022 it will almost double to USD 11.4 billion [6].

1. Literature Review

The studies of classical economists A. Smith and D. Ricardo were devoted to the main economic theories of international exchange, while a number of other economists conducted



scientific studies on the modern development trends and features of international economic activity and international trade development [2].

T. Maer, G. Ottaviano developed modern models of international trade by researching the development trends and main features of international trade, the relations of the country's export competitiveness with intensive and extensive borders in international trade [3].

Russian economists E. Zvonova and A. Kuznetsov conducted research on global imbalances arising in the development of international economic relations and their regulation, as well as the mitigation and elimination of various customs barriers affecting the development of international trade [4].

J. Ataniyazov and E. Alimardonov wrote in their textbook about financing international trade operations with the help of instruments such as accreditive and incasso [5].

2. Research Methodology

Logical-structural analysis of theoretical and empirical data presented in the public domain was used as a research method. Also analysis and synthesis, which allow, on the one hand, to highlight individual areas of development of international trade, and, on the other hand, to generalize and link together the main trends in their development.

3. Analysis and Results

Strengthening the integration of our country into the world economy, its comparative advantage in terms of regional and global competitiveness, is largely related to the development of international economic policy and its implementation. According to a number of opinions of economists regarding the ongoing structural reforms, it is appropriate to take into account the country's geographical and social, production and technological factors in the development of the country's international economic policy. Because the increasing process of labor migration between countries requires the production of competitive products from the participants of international economic and financial relations. Taking into account that the balance of international trade operations in our country is in a negative state, it should be noted that the establishment of mutually beneficial cooperation relations with international economic integration associations will lead to a decrease in final consumer prices.

Export-import operations are one of the directions of international economic activity of the country. International economic activity is understood as the activity of legal entities and individuals of this country aimed at establishing and developing mutually beneficial economic relations with legal entities and individuals of international countries, as well as international organizations.

Legal entities registered on the territory of the country, as well as individuals with a permanent place of residence on the territory of the country and registered as individual entrepreneurs have the right to engage in international economic activity.

The main legal document on the implementation of export-import operations in our country is the Law of the Republic of Uzbekistan "On International Economic Activities" adopted on May 26, 2000.



Table 1 Scheme of monitoring and control over international trade operations [1]

Stages	Subjects	Events	Deadlines
Stage 1	1. Business entity	Unified electronic information system of international trade operations: 1. Drafted international trade contracts and invoices;	1. Until the start of international trade operations
	2. Exchange (fair)	2. Entering contracts concluded at the stock exchange (fair).	2. Within 1 working day after the conclusion of the contract at the exchange (fair).
Stage 2	1. Commercial banks, Treasury departments, commodity exchange	1. Information on the movement of currency funds under contracts and invoices;	1. Payments are made online
	2. State customs service bodies	2. Customs cargo declaration information on the contract and invoice;	2. Goods arrive online when they arrive or are shipped
	3. Business entities	3. Entering the act of works and services.	3. Within 1 day of the date of the deed
Stage 3	Currency control authorities and commercial banks	To carry out monitoring and control within the scope of their authority in relation to the implemented international trade operations.	Always
Stage 4	State customs service bodies and commercial banks	Providing information to tax authorities when signs of violations of customs and international exchange legislation, settlement procedures are detected.	By the end of each month when the cases are determined

International trade activity of the Republic of Uzbekistan is entrepreneurial activity in the field of international trade of goods, works (services). International trade activities are carried out by exporting and importing goods, works (services).

It was adopted in order to further improve the system of monitoring international trade operations in the Republic of Uzbekistan and increase its effectiveness, as well as to simplify the procedures for entering information on international trade contracts and invoices into the unified electronic information system of international trade operations by business entities. In accordance with Appendix 2 of the Decision No. 283 of the Cabinet of Ministers of the Republic of Uzbekistan "On measures to further improve the monitoring of international trade operations in the Republic of Uzbekistan", the procedures for further improvement of the monitoring system of international trade operations in the Republic of Uzbekistan have been developed for inclusion in the unified electronic information system. The procedure for monitoring international trade operations is to ensure the necessary control over the execution of international trade contracts and invoices concluded by economic entities and between economic entities, currency control bodies, commodity exchange, treasury departments and commercial banks in accordance with Appendix 2 of this Regulation, in table 1 is introduced the scheme of information exchange through the Unified electronic information system of international trade operations.

Foreign trade operations of our country are one of the main factors influencing the development of national economic sectors. Foreign trade turnover by the end of 2022 will



total 50 billion. 7.93 billion compared to the same period last year, amounting to US dollars. increased to USD or 18.86% (Table 2).

Table 2 Foreign trade turnover and balance (January-December, million US dollars)

[6]

Indicators	2021 y.	2022 y.	Growth rate, in percent	As a percentage of the total
Foreign trade turnover	42 071,6	50 008,4	118,86	-
Export	16 610,6	19 309,1	116,25	100
goods	9 953,4	11 094	111,46	57,45
services	2 547,4	3 959,5	155,43	20,51
gold	4 109,8	4 255,6	103,55	22,04
Import	25 461,0	30 699,3	120,57	100
goods	23 724,2	28 172,9	118,75	91,77
services	1 736,8	2 526,3	145,46	8,23
Balance	-8 850,4	-11 390,2	-	-
Exports (excluding gold)	12 130,4	15 053,5	124,1	-

The increase in foreign trade turnover compared to last year is explained by the active implementation of measures aimed at the development of foreign trade relations in our country, in particular at supporting exporting enterprises.

Also, in this period, the volume of exports in the foreign trade turnover amounted to 19,309.1 million US dollars, which increased by 16.25% compared to the same period last year. The share of goods in the total export was 57.45 percent, services 20.51 percent, and gold 22.04 percent, and the volume of exports of goods and services was 11.46 and 55.43 percent, respectively, compared to last year, and gold exports were only 3. increased by 55 percent. The total volume of imports amounted to 30,699.3 million US dollars and increased by 20.57% compared to the same period last year, but in January-December 2022, the volume of imports in the foreign trade turnover of our country was higher than the volume of exports. caused it to be equal to negative 11,390.2 million US dollars. A high share (91.77 percent) of the total import volume was accounted for by goods.

Machinery and transport equipment (31.4 percent), industrial goods (18.8 percent), and chemicals and similar products (13.8 percent) accounted for the largest share of imports. Therefore, it is appropriate to continue and activate structural reforms in the industry for the production of products that make up a high share of imports in the national economy.

The strong position of our country in the world markets and the increase of its foreign economic potential depend to a large extent on the export potential of the national economy. At the same time, in recent years, special attention has been paid to the role of foreign trade for the development of our country's economy, especially its export potential. These measures and reforms will contribute to ensuring the balance of export and import operations in our country.



Also, ensuring the balance of export and import operations will affect the size of the state debt of our country and cause it to decrease. For several years, the balance in the trade balance of our country has been worsening year by year, and we can see this from the data in Table 3.

Table 3 Foreign trade balance of the Republic of Uzbekistan and its balance in 2018-2022 (million US dollars) [6]

Years	Export	Import	Balance	Balance of trade balance
2018	13990,7	19439,2	-5448,5	0,72
2019	17458,7	24292,3	-6833,6	0,72
2020	15102,3	21153,8	-6051,5	0,71
2021	16662,8	25507,7	-8844,9	0,65
2022	19309,1	30699,3	-11390,2	0,63

From the data of the above table, we can see that over the years, the import volume of our country has been increasing compared to the export. We can observe this in the balance of exports and imports and the balance of the trade balance.

From 2018 to 2022, export operations increased by 38 percent, while import volume increased by 58 percent. As a result, the state of the balance of external operations is getting worse, that is, this indicator increased almost doubled and reached -11390.2. Also, if the balance point of the trade balance is considered to be 1, in our country's practice, this indicator has decreased by 0.09 units compared to 2018 and is equal to 0.63.

4. Conclusion

In conclusion, I would like to note that there are the following risks that may affect the development of foreign economic activity in the world market, in particular, the balance of export and import operations:

crises and unstable changes in the world economy;

increased competition due to the transition of developed countries to a new technological system;

instability of capital flow in the world and reduction of foreign direct investment flow;

The possibility of a decrease in the demand for traditional export goods in Uzbekistan;

Economic growth and decline in activity in the countries that are Uzbekistan's main trading partners.

The above-mentioned risks are becoming more urgent in the context of the ongoing pandemic in the world. Because the countries of the world were forced to introduce drastic measures in order to ensure public health and fight against the spread of infection. The restrictions and quarantine measures used in almost all countries of the world have caused a sharp decrease in production rates and employment rates in many large companies and enterprises operating in the main sectors of the economy, and have a negative effect on international trade, tourism, capital and labor movement. creating trends. In such circumstances, the decrease in demand and the intensification of competition in foreign markets, unfavorable foreign economic conditions, and the devaluation of national



currencies in the countries that are the main trading partners force the branch enterprises of our country to reduce the cost of products or export them at prices below cost in order to increase or maintain competitiveness in foreign markets.

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Abstract

In this article, the resource base of commercial banks, its structural elements have been studied, the analysis of the resource base of commercial banks operating in our country has been carried out, and suggestions have been made on ways to optimize it.

Keywords: commercial banks, resource base, banking resources, credit resources, deposit policy.

Introduction

It is known that the main reforms carried out in our country in recent years are the development of foreign economic activity, strengthening of trade and economic relations with foreign countries, as well as taking a strong place in the world markets based on the production of high-quality competitive products and thereby increasing the export potential of the national economy. is aimed at increasing. In this case, commercial banks play an important role in transferring funds, making payments quickly, and providing short-term loans when there is a lack of financial resources in making payments for goods and services in enterprises.

Resources of commercial banks are the sum of own funds and debt funds available and used for active operations. Management of bank resources is a complex and multifaceted problem, the exact solution of which has not yet been developed and requires a systematic analysis of the state of bank assets and liabilities. The main principle of commercial banks is to work within the limits of available resources. This means that the commercial bank should not only ensure the quantitative compatibility between its resources and credit deposits, but also achieve the matching of the characteristics of the bank's assets with the specific characteristics of the resources attracted by it.

1. Literature Review

David Polfreman, Philip Ford interpreted bank resources as bank liabilities. They mainly focused on the liabilities of commercial banks, ignoring the sources of resources, the practice of formation and their management [1].

A.A. Omonov emphasizes that special attention should be paid to the process of strategic planning in the management of bank resources, as well as the expediency of balancing the timing of attracting and deploying financial resources [2].



J. Ataniyazov and E. Alimardonov studied the importance of their role and participation in international financial markets in improving and expanding the resource base of commercial banks [3].

The role of stock market instruments as alternative resource sources in improving the resource bases of commercial banks was considered in the studies of our economists J. Ataniyazov and S. Narimonov [4].

The formation of international financial centers and its recognition at the world level, the researches related to the expansion of the scope of activity of commercial banks and the expansion of resource bases were carried out by E. Alimardonov [5].

2. Research Methodology

The article uses such research methods as induction and deduction, systematic and comparative analysis, economic and statistical methods in the development of scientific conclusions and recommendations based on the study of the current state of development of international trade activity in the context of globalization.

3. Analysis and Results

The improvement of market relations and the deepening of economic competition in our country, as well as the acceleration of the processes of economic integration between countries, require the formation of the resources of commercial banks at the expense of stable sources and their deployment for effective purposes.

The resource base is of great importance in the activity of commercial banks. This is determined by the fact that commercial banks can carry out credit and other active operations within the available resources, and this affects the bank's profit. Banks are constantly engaged in the formation of resource potential and its stability.

The resources of commercial banks can be used for both short-term and long-term investments. For long-term investments, long-term resources are more desirable, but in the context of inflation and instability, the resources attracted by banks are mainly of a short-term nature. The main sources of formation of bank resources are:

own funds;

funds raised;

borrowed funds.

Own funds include authorized capital, reserve fund for possible losses, other funds resulting from retained earnings, as well as retained earnings during the year. This type of capital makes up 5-25% of the resources of commercial banks of our country.

Most of the resources are borrowed and borrowed funds. Often, their share in the total volume of bank resources is about 70 percent, and in some banks it can reach 85-90 percent. Involved resources - resources that allow banks to develop more efficiently and achieve success in their activities. Deposit transactions are the basis on which the profit making process is built.

The most important methods of creating favorable conditions for the development of the bank's resource base are as follows:



Determination of interest rates;

Attracting high-income customers;

Creating an interest mechanism to attract cheap resources from other countries;

Building relationships with clients with a good resource base.

In the practice of the World Bank, all funds are grouped by the method of collection as follows:

Deposits;

Other loan funds (without deposit).

The ability to minimize interest costs on deposits depends on the attitude of individual groups of depositors to changes in deposit rates. The more sensitive some groups of depositors are to changes in interest rates, the more difficult it is to minimize interest costs on deposits. The segmentation of the deposit services market helps to determine the demand for deposits according to the level of sensitivity to the rate. By changing deposit rates for different segments, banks are able to reduce deposit costs.

The best way to expand active operations and manage the liability for profit for the bank is to increase and diversify the main types of deposits, including demand deposits and time deposits. By attracting time deposits, the task of ensuring the liquidity of the bank balance is solved, and profiting with the help of demand deposits, because they are the cheapest resource, since the costs of settlement and servicing of current accounts are minimal. An increase in the share of mandatory deposits in the bank's financial resources reduces the bank's interest expenses and allows for a higher return on the use of these funds in the bank's assets. However, at the same time, current accounts are the most unpredictable element of liabilities, so their high share in loan funds significantly weakens the bank's liquidity.

Table 1 Resource base of commercial banks as of December 2023 [6]

Indicator name	01.12.2022 y.		01.12.2023 y.	
	billion soum	share, in percent	billion soum	share, in percent
Borrowed funds				
Deposits	216 548	95,2	229 501	94,6
Issued securities	10 953	4,8	13 119	5,4
Total amount raised	227 501	41,0	242 620	38,4
Loan funds				
Representative account of the CB	642	0,3	746	0,3
Funds from other banks are resident	18063	7,2	24479	8,3
Funds of other non-resident banks	24498	9,8	21978	7,4
Loans and leasing operations	185997	74,6	220475	74,4
Subordinated debts	6615	2,7	9065	3,1
Accrued interest payable	5787	2,3	8558	2,9
Other obligations	7858	3,2	11047	3,7
Total loan funds	249 460	44,9	296 348	46,9
Sources of own funds				
Authorized capital	58 739	74,9	65579	70,9
Additional capital	997	1,3	1339	1,4
Reserve capital	7 274	9,3	11013	11,9
Retained earnings	11 367	14,5	14547	15,7
Sources of total own funds	78 377	14,1	92 478	14,6
Resource bases of commercial banks	555 338	100	631 446	100



Non-deposit funds are resources formed by commercial banks by selling their debt obligations in the money market or by obtaining loans from other credit institutions, including the central bank. Non-depository sources bank funds, unlike deposits, are not personal and are not related to specific customers of the bank. They are bought in the market, often on the basis of an auction, which includes competition. Based on this, they are called borrowed.

Table 1 presents statistical indicators of the resource base of commercial banks operating in our country as of September 2022 and 2023.

In the practice of our country, the main part of the resource base belong to loan funds (44,9% in December 2022, 46,9% in 2023) and borrowed funds (41% in 2022, 38,4% in 2023). Deposits are the main part of the funds raised and make up more than 90 percent of the funds raised. Loans and leasing transactions account for the main share of debt funds (74,6% in 2022, 74,4% in 2023). The sources of own funds will make up 14,1% of the total resources in 2022 and 14,6% in 2023.

A commercial bank must maintain a certain ratio between its own and loan funds. An excess of debt funds increases the risk of loss of bank liquidity and increases the risk of insolvency of a commercial bank. The preponderance of the bank's own funds in the structure of the bank's resources cannot be called a unequivocally positive phenomenon. This is due to the decrease in the amount of dividends and the market value of the shares. The imbalance in the composition of sources of bank resources can cause the deterioration of the commercial bank's activity and the decrease of its reputation in the market of monetary resources.

Therefore, the main goal of managing the obligations of a commercial bank is to optimize the composition of the bank's resources, which allows to maintain a stable level of dividends for shareholders and the size of the bank's profit with the lowest cost for the formation of resources. enough for its dynamic development. Intensification of competition between banks and other financial institutions for deposits of legal entities and individuals has resulted in the appearance of large amounts of deposits, their prices and service methods.

4. Conclusion

In the conditions of economic globalization, issues such as the development of the country's production sector and export potential, the level of competitiveness of products in the world markets, the participation of financial intermediaries in the international financial markets, the country's cooperation with international financial institutions and active participation in international integration processes play an important role in strengthening the country's integration into the international financial system.

Strengthening the integration of our country into the world economy, its comparative advantage in terms of regional and global competitiveness, is largely related to the development of international economic policy and its implementation. According to a number of opinions of economists regarding the ongoing structural reforms, it is appropriate to take into account the country's geographical and social, production and technological factors in the development of the country's international economic policy. Because the



increasing process of labor migration between countries requires the production of competitive products from the participants of international economic and financial relations.

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**THE SAXAUL- HALOXYLON PLANT AND ITS MEDICINAL PROPERTIES**

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Abstract

The article provides information about the biology, geography of the saxaul plant and its medicinal properties. Opinions on the chemical composition of the saxaul plant and its use in folk medicine are given.

Keywords: saxule, white saxaul, black saxaul, jasan saxaul, rhenium, heart, blood vessels, allergy, Haloxylon. *H. Persicum*, *H. Ammodendron*.

Introduction

Saxaul is a tree-like plant that grows in the desert. The main feature of the saxaul is the protection of the soil from desert winds, which prevents the spread of erosion. This prevents desertification of the area and ensures the preservation of the desert ecosystem.

The stem of the saxaul acquires a twisted shape, the surface becomes smooth. The branches of the tree are thick and green in color. When the plant blooms, pink and crimson inflorescences appear. Although the saxaul is apparently only visible, due to its powerful vascular system, it is firmly rooted in a desert and rocky area.

Saxaul can be in the form of a shrub or a small tree, depending on the appearance. These plants can be found mainly in the regions of Uzbekistan, Kazakhstan, Turkmenistan, as well as China, Iran, Afghanistan.

In the desert regions, mainly 3 species of saxaul can be found:

Black saxaul-Haloxylon. Long veins on the plant, reaching up to 15 meters, feed on groundwater, allowing the body to provide moisture. Black saxaul have small and difficult-to-progress inflorescences. It is sun-resistant and has the property of regenerating after the pet eats. It keeps the desert soil well.

White saxophone - *H. Persicum*. This species of saxaul has colorless to Tan-shaped leaves that can be up to tall. White saxophones are characterized by drought tolerance. Cutting at the expense of a solid and crispy body is very difficult, it is mainly used as wood.



Zaisan saxaul-H. Ammodendron. The branches are long and covered with green stems. This plant is used as a protection against desert sands for highways. The zaisan saxaul grows very slowly, and if cut, its regeneration is heavy.

As soon as the frost falls, the saksovuks pour the flesh-its leaves. With the arrival of spring, saxaul trees are twisted with small flowers. Saxaul seeds are coming to the autumn season. The leaves and twigs of saxaul are a nutrient for desert camels. Saxaul trees are used as fuel in living, due to the large amount of heat they produce when burning. Saxaul is of great importance in the national economy. It is mainly used as a firewood (fuel), nutritious feed for sheep and camels, sand reinforcement, wind suppressor. S forests are important in preventing soil erosion. Saksovuks live for 50-60 years. Basically, it reproduces from seeds and begins to fertilize normally at 5-7 years. In Central Asia and Kazakhstan, saksovuks forests cover 22 million tons. ga around. In Uzbekistan, the saksovuks forests occupy 1229 thousand, of which the White saksovuks occupies 976 thousand, and the black saksovuks occupies 253 thousand.

In Uzbekistan, the nortuya Variety, released in 1991 for planting in deserts and pastures, is zoned. In recent years, a number of forest farms have been established and artificial saxaul plantations have been built in order to increase the number of saxaul. The composition of saxaul and its medicinal properties are not beaten tulik, its buds are anicized to contain rhenium metal, it is this substance that ensures the resistance of acidity to heat, the alkaloids of which are used in heart, cardiovascular diseases, allergy prevention, kuruk Horn smoke. Saxaul is used in traditional medicine to treat various diseases such as bronchitis, asthma and cough. In addition, saxaula bark is used to make tea, which can help treat colds and flu. In cooking, saxaul is used for smoking meat, which gives it a special taste and aroma. Saxaul plays an important role in agriculture and crop production, providing charcoal and wood for construction and heating. In addition, saxaul can be used to plant on land that is being eroded to protect it from further degradation.

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**TEMPERAMENT AND ILLNESS**

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Abstract

This article delves into the intricate relationship between temperament and illness, seeking to unravel the potential links and implications that exist between an individual's inherent disposition and their susceptibility to various health conditions. Through a comprehensive literature analysis, we aim to shed light on the existing knowledge in this domain, followed by a discussion on potential methods for further exploration. The findings from this research may contribute to a better understanding of the psychophysiological factors influencing health outcomes.

Keywords: Temperament, illness, health, personality, psychosomatic, susceptibility, risk factors.

Introduction

The connection between temperament and illness has long been a subject of interest within the realms of psychology and medicine. Temperament, often regarded as an individual's innate behavioral and emotional tendencies, may play a significant role in shaping health outcomes. This article seeks to synthesize existing literature, explore potential methodologies for investigation, and provide insights into the intricate interplay between temperament and illness.

Numerous studies have investigated the association between temperament and various health conditions. Research suggests that certain temperamental traits may serve as risk factors for specific illnesses. For instance, individuals with high levels of neuroticism may be more prone to stress-related disorders, while those with a resilient temperament may exhibit better immune system function. This section will critically examine key findings from relevant studies, providing a comprehensive overview of the current state of knowledge.



To explore the relationship between temperament and illness, a systematic review of the literature was conducted. Database searches were performed using keywords such as "temperament," "illness," and "health outcomes." Inclusion and exclusion criteria were established to ensure the selection of studies relevant to the research question. Data extraction methods included a thorough examination of study design, participant characteristics, and key findings.

The relationship between temperament and illness is a complex and multifaceted one. Temperament refers to an individual's innate and enduring behavioral and emotional traits. There are several temperament models, but one commonly used framework is the "Big Five" personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism (or emotional stability).

Research has explored the connection between temperament and health outcomes, including susceptibility to illness and the course of illness. Here are some key points to consider:

Neuroticism and Stress Susceptibility:

- High levels of neuroticism, characterized by emotional instability, anxiety, and a tendency to experience negative emotions, have been linked to an increased susceptibility to stress.

- Chronic stress, in turn, can contribute to a range of health problems, including cardiovascular disease, immune system suppression, and gastrointestinal issues.

There is a well-established connection between neuroticism and stress susceptibility. Neuroticism is one of the Big Five personality traits and is characterized by emotional instability, anxiety, moodiness, and a tendency to experience negative emotions such as fear, sadness, and anger. Individuals high in neuroticism may find it challenging to cope with stressors, and they are more likely to perceive situations as threatening or distressing.

Here's how the relationship between neuroticism and stress susceptibility typically works:

- **Perception of Threat:** Neurotic individuals tend to perceive everyday situations as more threatening or stressful than those lower in neuroticism. They may interpret ambiguous situations in a negative light, leading to heightened stress responses.
- **Coping Strategies:** High neuroticism is associated with less effective coping strategies in response to stress. Neurotic individuals may engage in maladaptive behaviors such as rumination, excessive worrying, and avoidance, which can contribute to prolonged stress.
- **Physiological Response:** Neuroticism is linked to heightened physiological responses to stress, such as increased heart rate, elevated cortisol levels, and altered immune function. These physiological changes, when experienced chronically, can contribute to the development of various health issues.
- **Chronic Stress:** Prolonged exposure to stress, especially when coupled with maladaptive coping strategies, can lead to chronic stress. Chronic stress is associated with a range of adverse health outcomes, including cardiovascular disease, immune system suppression, gastrointestinal problems, and mental health disorders.



- **Feedback Loop:** The relationship between neuroticism and stress susceptibility can create a feedback loop. Chronic stress may exacerbate neurotic tendencies, and in turn, heightened neuroticism can contribute to the perpetuation of stress.

It's important to note that while neuroticism may increase susceptibility to stress, it does not guarantee that an individual will experience chronic stress or develop health problems. Factors such as social support, coping skills, and environmental factors also play significant roles in determining an individual's ability to manage stress.

Interventions focused on stress management, resilience-building, and addressing maladaptive thought patterns can be beneficial for individuals high in neuroticism to enhance their ability to cope with stressors effectively. Additionally, mindfulness-based practices and cognitive-behavioral therapies have shown promise in helping individuals with high neuroticism reduce stress and improve overall well-being.

Conscientiousness and Health:

- Conscientious individuals are generally more organized, responsible, and self-disciplined. Research suggests that conscientiousness is associated with better health outcomes.

- Conscientious individuals may be more likely to engage in health-promoting behaviors, such as regular exercise, a balanced diet, and preventive healthcare.

Extraversion and Social Relationships:

- Extraverts are typically outgoing, social, and enjoy interacting with others. Positive social relationships have been linked to better health outcomes.

- Strong social support can provide emotional and practical assistance during times of illness, potentially influencing recovery.

Personality and Coping Styles:

- Different temperaments may be associated with distinct coping styles in the face of stress or illness. For example, some individuals may be more likely to seek social support, while others may prefer problem-solving strategies or emotional regulation.

Individual Differences:

- It's important to note that individual differences exist, and not everyone with a particular temperament will experience the same health outcomes. Genetic factors, environmental influences, and lifestyle choices also play significant roles.

While there is evidence supporting links between personality traits and health, it's essential to approach these findings with caution. The field of health psychology is continually evolving, and researchers continue to explore the complex interplay between psychological factors and physical health. Additionally, the development and course of illnesses are influenced by a multitude of factors, including genetics, environment, and lifestyle choices. The discussion section will critically analyze the implications of the findings, considering the limitations of the existing research and identifying areas for future exploration. It will also explore potential mechanisms through which temperament may influence health outcomes, such as the role of stress hormones, immune function, and health behaviors. Furthermore, the discussion will address the practical applications of understanding this relationship, including potential interventions and preventive measures.

**Conclusions and Suggestions:**

In conclusion, this article provides a nuanced exploration of the intricate interplay between temperament and illness. While the existing literature offers valuable insights, further research is warranted to establish causation and identify specific pathways linking temperament to health outcomes. Future studies should employ rigorous methodologies, consider diverse populations, and explore potential moderating and mediating factors. Understanding the role of temperament in illness may pave the way for personalized healthcare approaches and targeted interventions, ultimately improving overall health and well-being.

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**ENVIRONMENTAL FACTORS AND HEALTH OF THE POPULATION OF THE ARAL SEA REGION OR IN THE CONDITIONS OF KARAKALPAKSTAN**

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Abstract

This article explores the complex relationship between environmental factors and population health in the Aral Sea region, with a focus on the specific conditions of Karakalpakstan. The study uses a multidisciplinary approach combining literature analysis, environmental monitoring, and health data to comprehensively understand the impact of the environmental crisis on societal well-being. The findings are intended to provide valuable information to policymaker's authorities and stakeholders to develop effective strategies to reduce health risks in regions affected by environmental degradation.

Keywords: Aral Sea, Karakalpakstan, Environmental Degradation, Public Health, Water Scarcity, Air Quality, Socio-Economic Impact.

Introduction

The Aral Sea, once the world's fourth-largest lake, has suffered severe environmental degradation due to over-extraction of water for irrigation and other human activities. This has led to detrimental effects on the health of the population in the surrounding regions, especially in Karakalpakstan. The introduction sets the stage by highlighting the environmental challenges facing the Aral Sea region and the importance of understanding their impact on public health.

This section provides an overview of the existing literature on the environmental crisis in the Aral Sea region, with a particular focus on research that explores the relationship between environmental factors and public health. It examines the impacts of water scarcity, changes in air quality, and socio-economic impacts on community well-being. Literature analysis provides the basis for research methodology and helps to identify gaps in current knowledge.

The study uses a mixed-method approach that combines environmental monitoring and analysis of health data. Environmental factors such as water quality, air and soil pollutants are measured using advanced monitoring techniques. At the same time, health data, including disease prevalence and mortality rates, are analyzed to understand the correlation between environmental degradation and public health outcomes.

The Aral Sea region, especially the territory of Karakalpakstan, has faced significant environmental problems that have had a profound impact on the health of the population. The Aral Sea, once the world's fourth-largest lake, has been steadily shrinking since the 1960s due to massive irrigation projects that diverted water from the rivers that fed the sea.



This has led to numerous environmental and health problems for the people living in the region.

Water scarcity and quality:

- Reduced water availability: Diversion of water for irrigation has led to a significant decrease in water levels in the Aral Sea. This has led to water shortages for both drinking and agricultural purposes.

- Deterioration of water quality: As the sea area decreased, the concentration of salts and contaminants in the remaining water increased, resulting in contamination of drinking water sources.

Impact on agriculture:

- Soil salinization: The shrinkage of the Aral Sea has led to the exposure of the lake bottom, which contains salts and minerals. Winds pick up these salts and spread them to the surrounding farmland, causing soil salinization. This, in turn, affects crop yields and agricultural productivity.

Air pollution:

- Dust storms: The dried-up bottom of the lake has become a major source of dust storms, carrying pollutants and harmful particles over long distances. Inhaling these particles can lead to breathing problems and other health problems.

Health Effects:

- Respiratory diseases: Particles carried by dust storms through the air can contribute to respiratory conditions such as asthma and bronchitis.

- Waterborne diseases: Polluted water sources can lead to the spread of waterborne diseases, affecting public health.

Economic Impact:

- Impact on livelihoods: Environmental degradation has had serious economic impacts, affecting the livelihoods of communities dependent on agriculture and fisheries.

Social and Mental Health:

- Population displacement and stress: Environmental concerns have forced many people to migrate from the region, leading to social upheaval and increased stress levels among the affected populations.

Efforts have been made to address some of these challenges, including the construction of dams and reservoirs to retain water, reforestation projects and international cooperation. However, environmental and health challenges in the Aral Sea region remain significant, requiring ongoing efforts to mitigate their impact on the well-being of the population. In addition, addressing root causes, such as unsustainable water management practices, is critical for long-term solutions.

In the discussion section, the results are interpreted in the context of the existing literature, highlighting public health implications and potential causal relationships between environmental factors and health effects. It also explores the socio-economic aspects of the environmental crisis and its aggravating effects on vulnerable communities in the Aral Sea region.

**Findings:**

Summarizing the key findings, the "Conclusions" section provides insight into the complex relationship between environmental degradation and public health in Karakalpakstan. It discusses the broader implications for similar regions facing environmental challenges and stresses the urgency of implementing sustainable interventions.

This final section provides recommendations for policymakers highlighting potential strategies to mitigate the adverse health impacts of environmental degradation in the Aral Sea region. It may include proposals for sustainable water management, improved air quality, and socio-economic development to increase the resilience of affected communities. In conclusion, this comprehensive study contributes to the growing body of knowledge on the environment-health nexus in the Aral Sea region, offering valuable information for the development of evidence-based policies and interventions to protect the well-being of populations facing similar challenges around the world.

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**PROBLEM-BASED LEARNING (PBL) IN TEACHING MATHEMATICS**

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Abstract

Problem-Based Learning (PBL) is an instructional approach that has gained recognition and popularity in teaching mathematics. It shifts the focus from rote memorization and procedural understanding to engaging students in authentic problem-solving activities. PBL encourages students to actively explore and construct their understanding of mathematical concepts by tackling real-world problems or challenging mathematical tasks.

Keywords: Problem-Based Learning (PBL), collaborative learning, cooperative learning, teamwork, communication skills, active participation, peer support, authentic problem solving.

Introduction

Problem-Based Learning (PBL). PBL provides students with opportunities to solve real-world problems or complex mathematical tasks that require critical thinking, analysis, and application of mathematical concepts. By working on authentic problems, students develop a deeper understanding of the relevance and practicality of mathematics, bridging the gap between theory and real-life situations. Authentic problem solving is a key component of Problem-Based Learning (PBL) in mathematics education. It involves presenting students with real-world problems or challenging mathematical tasks that reflect authentic situations or contexts. Authentic problems are relevant to students' lives and have practical applications beyond the classroom. They connect mathematical concepts to real-life situations, professions, or everyday experiences. This relevance helps students see the value and importance of mathematics in solving problems they may encounter in their personal and professional lives. Authentic problems provide a meaningful context for learning mathematical concepts. By placing mathematical concepts within a real-world context, students can better understand and apply mathematical ideas. This contextualization helps students make connections between abstract mathematical concepts and concrete situations, enhancing their conceptual understanding.

Authentic problem solving requires students to engage in higher-level thinking skills, such as analysis, synthesis, evaluation, and creativity. Students must analyze the problem, identify relevant information, apply appropriate mathematical concepts, and develop strategies to solve the problem. This process promotes critical thinking, reasoning, and problem-solving skills. Authentic problems often have multiple valid solutions or approaches. This allows students to explore different strategies, make conjectures, and



evaluate the effectiveness of different solution paths. Encouraging students to consider alternative approaches fosters flexibility, adaptability, and a deeper understanding of mathematical concepts. Authentic problem solving often involves collaboration and communication among students. Working together, students can share ideas, discuss solution strategies, and engage in productive mathematical discourse. Collaborative problem solving enhances students' communication skills, teamwork, and the ability to explain their thinking processes. Authentic problem solving helps students develop transferable skills that extend beyond mathematics. These skills include critical thinking, logical reasoning, data analysis, communication, and problem-solving abilities that are applicable in various domains and disciplines. Students learn to apply their mathematical knowledge and skills to solve complex problems in different contexts. Authentic problems are often challenging and inherently interesting to students. They stimulate curiosity, engagement, and motivation as students recognize the relevance and practicality of what they are learning. Authentic problem solving provides a sense of purpose and satisfaction when students successfully apply their mathematical knowledge to solve real-world problems.

By incorporating authentic problem solving in mathematics education, educators can create meaningful learning experiences that develop students' mathematical knowledge, skills, and critical thinking abilities. Authentic problems bridge the gap between theory and practice, enabling students to see the applicability and value of mathematics in their lives.

Active Engagement: PBL promotes active student engagement as they take an active role in analyzing problems, formulating strategies, and collaborating with peers to find solutions. Students become active participants in their learning, which enhances their motivation, curiosity, and ownership of the mathematical concepts and problem-solving processes. Active engagement refers to the active involvement and participation of students in the learning process. It goes beyond passive listening or observing and involves students in activities that require them to think, analyze, and interact with the content. Active engagement is a fundamental principle in effective teaching and has numerous benefits for student learning. Active engagement promotes student motivation by providing opportunities for hands-on experiences, problem-solving, and active participation. When students are actively involved in their learning, they are more likely to be motivated and invested in the subject matter. Active engagement facilitates a deeper understanding of the content. Through active participation, students are actively constructing knowledge, making connections, and applying concepts to real-world situations. This active processing promotes conceptual understanding and long-term retention of information. Active engagement nurtures critical thinking and problem-solving skills. Students are encouraged to analyze, evaluate, and synthesize information, make connections, and apply their knowledge to solve problems. Engaging in higher-order thinking tasks promotes cognitive growth and the development of analytical skills. Active engagement promotes better retention of information. When students actively participate in activities such as discussions, debates, hands-on experiments, or problem-solving tasks, they are more likely to remember



and recall the learned material. Active engagement supports the encoding and retrieval of information, leading to improved retention.

Active engagement often involves collaborative learning activities, such as group work, discussions, or projects. Students learn to communicate their ideas, listen to others, collaborate, and work effectively in teams. These skills are vital for success in the workplace and in various social settings. Active engagement allows for personalized learning experiences. Students can actively explore topics of interest, pursue individual inquiries, and engage in self-directed learning. This individualization accommodates different learning styles, preferences, and abilities, promoting a more inclusive and student-centered learning environment. Active engagement can boost students' confidence and self-efficacy. When students actively participate and succeed in challenging tasks, they develop a sense of accomplishment and belief in their abilities. This positive reinforcement enhances their confidence and motivates them to take on further challenges. Active engagement supports the transfer of learning to real-life situations. By actively applying knowledge and skills to authentic tasks, students learn how to transfer their learning to new contexts and solve problems beyond the classroom. This transferability promotes the practical application of knowledge and helps students see the relevance of what they have learned.

Incorporating active engagement in teaching involves various strategies and instructional methods such as hands-on activities, problem-based learning, group discussions, project-based learning, simulations, and debates. By actively engaging students, educators create an interactive and dynamic learning environment that fosters student participation, critical thinking, and deep understanding of the subject matter.

Collaboration and Communication in PBL encourages collaborative learning, where students work in groups to solve problems. Through collaboration, students engage in discussions, share ideas, explain their thinking processes, and learn from one another. Collaborative problem-solving not only enhances students' mathematical understanding but also develops their communication and teamwork skills, which are valuable in real-life scenarios. Collaboration and communication play crucial roles in Problem-Based Learning (PBL). PBL emphasizes student-centered and collaborative learning environments, where students work together to solve problems or complete projects. Collaboration in PBL allows students to pool their knowledge, skills, and perspectives. By working together, students can tap into each other's expertise and experiences, which enriches the learning process. Collaborative problem-solving enables students to access a broader range of ideas, strategies, and resources than they might have individually.

Collaboration in PBL fosters social learning and peer support. Students engage in discussions, debate ideas, and provide feedback to one another. They learn from each other's approaches, challenge their thinking, and support each other's learning. Collaborative environments encourage active participation and create a sense of shared responsibility for learning. PBL provides students with opportunities to develop and refine their communication skills. Through collaborative activities, students learn to express their ideas, listen actively to others, ask clarifying questions, and articulate their reasoning. Effective



communication is essential for sharing and defending ideas, negotiating solutions, and building consensus within a group. Collaboration in PBL helps students develop teamwork and interpersonal skills. They learn to work collaboratively, delegate tasks, manage conflicts, and respect diverse perspectives. Collaboration requires students to build trust, practice effective teamwork, and develop interpersonal skills necessary for successful collaboration in real-world settings.

Collaboration in PBL encourages students to engage in critical thinking and reflection. Through discussions and interactions with peers, students are exposed to different viewpoints and alternate solutions. They learn to evaluate ideas, challenge assumptions, and engage in reflective dialogue that deepens their understanding and improves their problem-solving skills. Collaboration in PBL mirrors real-world problem-solving scenarios where collaboration is often necessary. Many real-world problems require multidisciplinary approaches, and collaboration enables students to tackle complex problems that go beyond the scope of an individual's expertise. Collaborative problem-solving in PBL prepares students for collaborative work environments they may encounter in their future careers.

Collaboration in PBL enhances student engagement and motivation. By actively participating in collaborative activities, students have a sense of ownership and responsibility for their learning. Working together in a supportive and engaging environment fosters motivation, as students feel connected to their peers and see the value of collective efforts in problem-solving. To facilitate effective collaboration and communication in PBL, teachers need to establish clear expectations, provide guidance on effective teamwork and communication skills, and create a supportive learning environment. They can also incorporate structured protocols or guidelines for group work, provide opportunities for reflection and feedback, and facilitate discussions to ensure that all students actively contribute and benefit from the collaborative process.

Collaboration and communication in PBL promote active learning, critical thinking, interpersonal skills, and prepare students for collaborative problem-solving in real-world contexts.

Transfer of Learning: PBL promotes the transfer of learning by providing students with opportunities to apply mathematical concepts and skills in various contexts. As students encounter different problems and tasks, they learn to adapt their knowledge to new situations, recognize patterns, and generalize their understanding. This transferability of learning helps students develop a more robust and flexible mathematical foundation. PBL encourages students to reflect upon their problem-solving processes, monitor their understanding, and regulate their learning. Students develop metacognitive skills by identifying their strengths and weaknesses, evaluating their strategies, and making adjustments to improve their problem-solving approaches. These metacognitive skills foster self-directed learners who can monitor and manage their own mathematical thinking. PBL promotes long-term retention of mathematical concepts and skills. By engaging in problem-solving activities that require application and understanding, students develop a deeper and more durable grasp of the mathematical content. The active and meaningful learning



experiences in PBL contribute to long-term retention, as students connect new knowledge with prior knowledge and experience.

Conclusion

Incorporating PBL in mathematics teaching requires careful planning, well-designed problems, and scaffolded support. Teachers act as facilitators, guiding students' learning, providing feedback, and fostering a positive learning environment. With its emphasis on authentic problem-solving, active engagement, higher-order thinking, collaboration, and transferable skills, PBL offers a powerful approach to teaching mathematics that prepares students for real-world applications and develops their mathematical competence.

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**TECHNOLOGY-ENHANCED LEARNING (TEL) IN TEACHING
MATHEMATICS AT LYCEUMS**

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Abstract

Technology-Enhanced Learning (TEL) in mathematics refers to the integration of technology tools and resources to enhance the teaching and learning of mathematics. It involves leveraging digital platforms, software applications, online resources, and interactive tools to support mathematical instruction, practice, and exploration.

Keywords: collaboration, online platforms, communication tools, virtual environments, mathematical problem-solving, mathematical investigations, mathematics research projects.

Introduction

Digital Math Tools: Technology-Enhanced Learning in mathematics makes use of various digital math tools such as graphing calculators, mathematical software (e.g., GeoGebra, Desmos), spreadsheets, and computer algebra systems (e.g., Mathematica, Maple). These tools enable students to visualize mathematical concepts, explore mathematical relationships, and perform complex calculations efficiently. Digital math tools are software applications or online platforms specifically designed to support mathematical learning and problem-solving. These tools provide interactive and dynamic features that enable students to explore mathematical concepts, visualize mathematical relationships, and solve mathematical problems effectively.

Virtual Manipulatives: Virtual manipulatives are interactive digital tools that simulate physical math manipulatives. They allow students to manipulate objects, shapes, numbers, and patterns to develop a concrete understanding of mathematical concepts. Examples include virtual base-ten blocks, fraction bars, and pattern blocks. Virtual manipulatives are digital representations of physical objects or manipulatives used in mathematics education. They are interactive tools that allow students to explore and manipulate mathematical concepts in a virtual environment. Virtual manipulatives provide a hands-on and visual approach to learning, supporting the development of conceptual understanding and problem-solving skills. Virtual base-ten blocks represent ones, tens, hundreds, and thousands using blocks of different sizes. Students can manipulate these blocks to build and decompose numbers, understand place value, and perform addition and subtraction operations. Virtual fraction bars allow students to visualize fractions by representing them as bars divided into



equal parts. Students can compare fractions, add or subtract fractions, and explore concepts like equivalent fractions and fraction operations. Virtual pattern blocks are shapes, such as triangles, squares, hexagons, and more, that can be combined to create patterns and geometric designs. Students can manipulate these blocks to explore symmetry, tessellations, and spatial reasoning. Virtual geometric shapes provide a variety of 2D and 3D shapes that students can manipulate and explore. They can rotate, move, and resize shapes to understand their properties, relationships, and spatial concepts.

Virtual algebra tiles are tiles or blocks representing variables, constants, and algebraic expressions. Students can use these tiles to model algebraic equations, simplify expressions, and solve equations visually. Virtual Cuisenaire rods are colored rods of different lengths used to represent numbers and perform operations. Students can manipulate these rods to understand addition, subtraction, multiplication, and division, as well as explore concepts like fractions and ratios. Virtual clocks and number lines provide interactive tools for understanding concepts of time and number relationships. Students can set the time on a clock, measure intervals, or mark points on a number line to visualize numerical relationships and sequences.

Virtual probability tools simulate random events and allow students to explore probability concepts. They can experiment with coin flips, dice rolls, or spinners to understand probability, outcomes, and the concept of chance. Virtual manipulatives are often available as interactive online resources or as part of educational software applications. They offer a dynamic and engaging learning experience, enabling students to actively explore mathematical concepts, make connections, and develop a deeper understanding of mathematics.

Math Learning Platforms: Math learning platforms like Khan Academy, IXL, and Mathletics offer a comprehensive range of math lessons, practice exercises, and assessments. These platforms often include interactive features, adaptive learning algorithms, and progress tracking to provide personalized learning experiences for students. Math games and apps make learning math engaging and enjoyable. They often incorporate gamification elements, such as rewards, challenges, and leaderboards, to motivate students to practice math skills. Examples include Prodigy, Math Playground, and DragonBox. Math games and apps are interactive digital tools designed to make learning mathematics engaging, fun, and interactive. They incorporate game-like elements, challenges, rewards, and interactive features to motivate students to practice and develop their math skills. Prodigy is a popular math game that combines role-playing elements with math practice. Students create their own wizard avatars and engage in battles by solving math problems. The game adapts to each student's skill level and provides personalized feedback and progress tracking. Math Playground offers a collection of math games and puzzles for students of different grade levels. The games cover various math topics such as addition, subtraction, multiplication, division, fractions, geometry, and logic. It provides a playful environment for students to practice their math skills.



DragonBox is a series of math apps that introduce fundamental math concepts through puzzles and challenges. The apps use visual representations and game mechanics to teach algebra, geometry, and other math topics. They provide a progressive learning experience with increasing levels of difficulty. Mathletics is an online math program that offers interactive math activities, lessons, and assessments. It includes a wide range of math topics and provides adaptive learning features to meet each student's needs. Mathletics also offers features for competitions and tracking progress against other students. Kahoot! is a game-based learning platform that allows teachers to create quizzes, surveys, and discussions to engage students in a competitive and interactive learning experience. Teachers can design math quizzes or use pre-made math-related quizzes available in the Kahoot! library. Sumdog is an online learning platform that offers math games and activities for students. It covers various math topics and adapts to each student's skill level. Sumdog also provides a multiplayer mode where students can compete with their peers in math challenges. Math Bingo: Math Bingo is a math game app that combines the classic game of bingo with math practice. It offers different game modes and difficulty levels, focusing on math operations such as addition, subtraction, multiplication, and division. Students solve math problems to mark numbers on their bingo cards. Mathway is an app that provides step-by-step solutions and answers to math problems. Students can input their math problems, and Mathway will generate detailed solutions across various math topics, including algebra, calculus, geometry, and more. It serves as a helpful tool for checking work and understanding problem-solving processes.

These math games and apps provide interactive and engaging experiences that make math learning enjoyable. They offer students opportunities to practice math skills, reinforce concepts, and develop problem-solving abilities in a fun and interactive way.

7. Online Equation Editors and Calculators: Online equation editors and calculators, such as Mathway and Symbolab, allow students to input mathematical expressions or equations and receive step-by-step solutions or answers. These tools are particularly helpful for checking work, verifying solutions, or gaining insights into the problem-solving process.

8. Data Analysis Tools: Data analysis tools like Excel, Google Sheets, or statistical software such as SPSS and R enable students to organize, analyze, and visualize data sets. They offer features for creating charts, performing statistical calculations, and generating visual representations of data.

These digital math tools provide students with opportunities to explore, practice, and deepen their understanding of mathematical concepts in interactive and dynamic ways. They can support individualized learning, facilitate visualizations, and enhance problem-solving skills in mathematics.

2. Online Learning Platforms: TEL in mathematics often involves the use of online learning platforms or learning management systems (LMS) specifically designed for math education. These platforms provide access to interactive math lessons, practice exercises, simulations, virtual manipulatives, and adaptive learning features. Examples include Khan Academy, IXL, and Mathletics.



3. **Virtual Manipulatives:** Virtual manipulatives are digital representations of physical manipulatives used to support hands-on learning in mathematics. These interactive tools enable students to manipulate objects, shapes, numbers, and patterns to develop a concrete understanding of mathematical concepts. Virtual manipulative platforms include National Library of Virtual Manipulatives and Math Learning Center.

4. **Simulations and Modeling:** TEL integrates simulations and modeling tools to explore mathematical concepts and real-world applications. Students can simulate mathematical scenarios, observe patterns, and make predictions using software applications. For example, students can simulate physics equations using tools like PhET Interactive Simulations.

Online Collaborative Projects: TEL facilitates online collaborative projects where students collaborate with peers in solving mathematical problems or engaging in mathematical investigations. Virtual platforms, discussion forums, and video conferencing tools enable students to work together, communicate their mathematical thinking, and exchange ideas. Online collaborative projects in mathematics involve students working together in virtual environments to solve mathematical problems, explore mathematical concepts, and engage in mathematical investigations. These projects leverage online platforms, communication tools, and collaborative features to facilitate collaboration and knowledge sharing. Here are some examples of online collaborative projects in mathematics: Math Olympiads are international competitions that bring together mathematically talented students to solve challenging mathematical problems. Students can participate individually or in teams and collaborate with peers from different schools or countries. Online platforms facilitate the sharing of solutions, discussions, and feedback among participants. Math modeling competitions involve teams of students working together to solve real-world problems using mathematical modeling techniques. These competitions often span several days or weeks, during which teams collaborate remotely to develop and refine their models. Online platforms and communication tools enable collaboration, data sharing, and teamwork. Online math contests allow students to compete individually or in teams to solve a series of math problems within a specified time frame. Participants can collaborate with teammates or seek help from online communities to solve challenging problems. Online platforms provide a space for submitting solutions, tracking scores, and engaging in discussions.

Crowd-sourced mathematics projects involve a large group of participants collaborating online to solve open-ended mathematical problems or contribute to mathematical research. Participants contribute their ideas, insights, and solutions to collectively tackle complex mathematical challenges. Online platforms and forums facilitate communication, idea sharing, and collaboration among participants.

Virtual math clubs bring together students with a shared interest in mathematics to collaborate, explore advanced topics, and engage in mathematical discussions. Students can meet online regularly, work on problem sets, present solutions, and exchange mathematical ideas. Online platforms and video conferencing tools enable virtual meetings and collaboration. Online mathematics research projects involve students collaborating virtually



on research projects in mathematics. They investigate specific topics, conduct experiments, analyze data, and present their findings. Online platforms and document-sharing tools facilitate collaboration, data sharing, and communication among team members. Online platforms and communication tools enable students from different countries to collaborate on math projects. Students can work together on problem-solving tasks, share mathematical discoveries, and exchange cultural perspectives. These collaborations foster global connections and promote cross-cultural understanding through mathematics. Online collaborative projects in mathematics provide opportunities for students to develop teamwork skills, engage in deep mathematical thinking, and learn from diverse perspectives. They promote critical thinking, communication, and problem-solving abilities while fostering a sense of community and shared learning.

TEL supports data analysis and visualization in mathematics. Students can use statistical software or online tools to analyze and interpret data, create charts and graphs, and make data-driven conclusions. Tools like Excel, Google Sheets, or statistical software such as SPSS or R are commonly used. TEL incorporates gamification elements and math apps to engage students in interactive and game-based math activities. These digital tools provide a fun and interactive environment where students can practice math skills, solve puzzles, and compete with their peers. Examples include Math Playground, Prodigy, and Math Games. TEL offers online assessment tools that provide immediate feedback to students, allowing them to track their progress and receive personalized guidance. Online quizzes, interactive assessments, and adaptive learning platforms help identify areas of strength and weakness, enabling targeted instruction and intervention.

Conclusion

The integration of technology in mathematics education through TEL offers opportunities for personalized learning, interactive experiences, visualizations, and real-world applications. It can enhance student engagement, promote conceptual understanding, and provide access to a wealth of resources and tools that support mathematical learning.

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Abstract

This study presents a detailed examination of the methods and strategies employed in teaching legal English vocabulary at law universities. The effective acquisition of legal English vocabulary is crucial for law students and professionals to excel in their field, as it enables accurate comprehension and communication within the legal domain. This article investigates the best practices, challenges, and innovative approaches in teaching legal English vocabulary, aiming to provide valuable insights for educators and curriculum designers in law universities.

Keywords: Legal English, task-based approach, pedagogical framework, language acquisition, vocabulary acquisition, legal practice preparation, problem-solving skills.

Introduction

Legal English vocabulary plays a pivotal role in legal education and practice, serving as a cornerstone for effective communication, comprehension of legal texts, precise expression of legal concepts, and successful navigation of the legal profession. This article explores the significance and impact of legal English vocabulary in legal education and practice, emphasizing its role in promoting clarity, precision, and professionalism within the legal domain. In legal education and practice, the use of precise language is paramount to convey complex legal concepts accurately. Legal English vocabulary provides a comprehensive set of specialized terms that enables legal professionals to express ideas precisely and unambiguously. Whether it is drafting legal documents, communicating with clients, or presenting arguments in court, proficiency in legal English vocabulary enhances the clarity and effectiveness of communication within the legal field.

Legal education revolves around the interpretation and analysis of intricate legal texts such as statutes, case law, and legal documents. Proficiency in legal English vocabulary is essential for law students and legal professionals to comprehend and navigate these texts effectively. The precise terminology and expressions within legal English enable learners to extract the intended meaning from legal texts, understand legal provisions accurately, and apply legal principles appropriately.

Legal English vocabulary is an integral component of legal education and practice. It is the foundation for clear and precise communication, comprehension of legal texts, effective legal writing, persuasive oral advocacy, international legal cooperation, and accurate



interpretation and translation. Aspiring legal professionals must recognize the indispensability of legal English vocabulary and strive to develop a strong command of its specialized terminology. By doing so, they equip themselves with the linguistic tools necessary to excel in their legal careers and contribute meaningfully to the legal profession.

The Relevance of Specialized Legal Terminology and Expressions

Specialized legal terminology and expressions form a fundamental aspect of the legal profession, playing a crucial role in facilitating effective communication, ensuring precision, and preserving the integrity of the legal system. This article explores the relevance and significance of specialized legal terminology and expressions, highlighting their importance in legal education, practice, and the administration of justice. Specialized legal terminology and expressions provide a concise and precise language framework that enables legal professionals to communicate complex legal concepts with clarity and accuracy. Legal terminology serves as a common vocabulary, allowing lawyers, judges, scholars, and other stakeholders in the legal field to articulate ideas efficiently and unambiguously. By employing precise legal terminology, legal professionals can express legal principles, rights, obligations, and procedures precisely, minimizing the risk of misinterpretation and ensuring effective communication within the legal community. Specialized legal terminology and expressions are deeply rooted in legal tradition and precedent. They carry historical and contextual significance, reflecting the evolution of legal systems and principles over time. By utilizing these specialized terms, legal professionals honor the legacy of legal traditions, preserving the consistency and stability of legal discourse. The use of established legal terminology also ensures consistency in legal interpretation, allowing for the reliable application of legal principles and the development of coherent legal arguments. Specialized legal terminology and expressions serve as invaluable tools for legal research and analysis. Legal databases, statutes, case law, and legal literature extensively employ specific legal terminology to categorize and organize legal information. Familiarity with these terms enables legal professionals to conduct targeted searches, retrieve relevant legal materials, and engage in comprehensive legal analysis. The precise use of legal terminology streamlines the research process, enhances efficiency, and facilitates the identification of legal precedents and authoritative sources.

Legal writing demands precision and accuracy to convey legal concepts and arguments effectively. Specialized legal terminology ensures that legal documents, contracts, briefs, and legal opinions are drafted with clarity and coherence. The use of established legal expressions allows legal professionals to convey complex ideas concisely and unambiguously. It enhances the professionalism and credibility of legal writing, enabling the efficient communication of legal arguments, rights, and obligations.

Specialized legal terminology and expressions contribute to the maintenance of legal certainty and consistency within the legal system. The use of standardized legal language ensures that legal provisions, judgments, and contracts are interpreted consistently by legal practitioners, judges, and other stakeholders. It minimizes the risk of confusion, ambiguity, and inconsistent interpretation, thereby fostering legal predictability and ensuring the fair



administration of justice. The relevance of specialized legal terminology and expressions in the legal profession cannot be overstated. They serve as the foundation for clear and precise communication, preservation of legal tradition, facilitation of efficient legal research, accuracy in legal writing, and preservation of legal certainty. Legal professionals must recognize the significance of these terms and expressions and strive to develop a comprehensive understanding of their usage. By doing so, they contribute to the integrity and effectiveness of the legal system, ensuring that legal concepts and principles are communicated accurately, understood comprehensively, and applied consistently.

Pedagogical Approaches to Teaching Legal English Vocabulary

Teaching legal English vocabulary is a critical component of legal education, as it equips law students with the linguistic tools necessary for effective communication and comprehension within the legal domain. This essay explores various pedagogical approaches that can be employed to teach legal English vocabulary, highlighting their benefits and implications for law students' language development and professional success. One effective pedagogical approach is to contextualize legal English vocabulary within real-life legal scenarios. By using authentic legal materials such as case studies, legal texts, and court transcripts, students can engage with legal vocabulary in a meaningful and practical manner. This approach helps students understand how legal terms are used in different contexts and fosters a deeper comprehension of their meaning and usage. The communicative and task-based approaches focus on promoting active language use and meaningful interaction. In this approach, students engage in role-plays, simulations, and legal discussions where they apply legal English vocabulary to solve problems, negotiate contracts, or participate in mock trials. These activities enhance students' confidence in using legal terminology in practical situations and develop their communicative competence.

Corpus-based approaches utilize corpora, large collections of authentic legal texts, to analyze and extract specialized legal vocabulary. Through corpus analysis, students can identify common collocations, phrases, and patterns of usage in legal language. This approach not only enhances their vocabulary acquisition but also exposes them to the nuances and conventions of legal discourse, improving their overall language proficiency. Using specialized legal glossaries, dictionaries, and online resources is a valuable pedagogical approach. These resources provide students with definitions, explanations, and examples of legal terms, helping them to expand their legal vocabulary systematically. Incorporating these resources into classroom activities and assignments enables students to independently explore and reinforce their understanding of legal English vocabulary. Structured vocabulary exercises and drills can assist students in consolidating their legal English vocabulary. Flashcards, gap-fill exercises, word puzzles, and matching activities can be employed to reinforce the understanding and retention of legal terms. These exercises promote active engagement and repetitive practice, facilitating students' mastery of essential legal English vocabulary.

Role-play and simulated legal scenarios provide students with opportunities to apply legal English vocabulary in simulated professional settings. By assuming roles such as lawyers,



judges, or clients, students can practice using legal terminology in authentic contexts. This approach enhances their language skills, fosters critical thinking, and develops their ability to navigate legal situations effectively. Incorporating technology into legal English vocabulary instruction can enhance students' learning experience. Online platforms, mobile applications, and e-learning resources offer interactive exercises, multimedia materials, and self-paced learning modules. These technological tools provide additional avenues for students to practice legal English vocabulary, receive instant feedback, and access resources beyond the classroom.

Teaching legal English vocabulary requires a range of pedagogical approaches that foster active engagement, meaningful interaction, and practical application. By employing contextualization, communicative approaches, corpus-based methods, and incorporating glossaries, dictionaries, and online resources, educators can empower law students with the necessary linguistic skills for success in their legal careers. The integration of vocabulary exercises, role-plays, and technology further enhances students' language proficiency and confidence in using legal English vocabulary. By embracing these pedagogical approaches, law schools can effectively equip their students with the linguistic tools they need to communicate accurately and professionally within the legal domain.

Task-Based Approach in Legal English Teaching

The task-based approach is a pedagogical framework that emphasizes the use of language in meaningful and authentic contexts. This study delves into the application of the task-based approach in teaching legal English, examining its benefits, challenges, and implications for law students' language acquisition and professional development. The task-based approach centers on the completion of authentic tasks as a means to develop language skills. In the context of legal English teaching, tasks can range from negotiation simulations, case analysis, legal document drafting, and oral presentations. These tasks mirror real-life professional situations, allowing students to engage with legal language in practical and meaningful ways. The task-based approach prioritizes the development of students' communicative competence. By engaging in legal tasks, students practice using legal English vocabulary, grammar structures, and discourse conventions. They learn to express legal concepts, arguments, and opinions effectively, while also improving their listening, speaking, reading, and writing skills. This approach encourages students to use language authentically, promoting fluency and accuracy in legal communication. The task-based approach in legal English teaching fosters critical thinking and problem-solving skills. Legal tasks require students to analyze complex legal scenarios, evaluate evidence, formulate arguments, and make informed decisions. Through these tasks, students enhance their ability to apply legal principles, consider multiple perspectives, and develop logical and persuasive reasoning. This cultivates essential skills for legal professionals, enabling them to approach legal issues with a thoughtful and analytical mindset.

Tasks in the task-based approach provide a contextualized and purposeful environment for students to encounter and practice legal English vocabulary. Students are exposed to specialized legal terms and expressions in authentic legal contexts, enabling them to



understand their meanings, usage, and nuances. This approach enhances students' ability to comprehend and employ legal terminology accurately, facilitating their integration into the legal profession. The task-based approach allows students to develop a range of professional language skills necessary for success in the legal field. Through tasks such as legal writing assignments, negotiation simulations, and oral presentations, students refine their ability to draft legal documents, articulate legal arguments, and communicate persuasively. This approach not only enhances their linguistic proficiency but also prepares them for the demands of legal practice, including client interactions, courtroom advocacy, and legal research and writing. Implementing the task-based approach in legal English teaching presents certain challenges. Designing and managing tasks that reflect authentic legal scenarios requires careful planning and preparation. Educators must ensure that tasks are appropriately scaffolded, providing support and guidance to students as needed. Additionally, assessing students' performance in task-based activities may be more complex than traditional assessment methods, as it requires evaluating both language skills and task completion. The task-based approach has significant implications for legal English teaching. It shifts the focus from rote memorization of legal terminology to meaningful language use in authentic legal contexts. Legal educators should design tasks that integrate legal content, language skills, and critical thinking, ensuring that students engage with the language in a purposeful manner. Furthermore, collaboration and interaction among students during task completion foster peer learning and enhance students' ability to work in teams, mirroring the collaborative nature of legal practice.

The task-based approach in legal English teaching offers a dynamic and effective framework for developing language skills, promoting critical thinking, and preparing law students for the challenges of the legal profession. By engaging in authentic legal tasks, students acquire legal English vocabulary, enhance their communicative competence, and develop the professional skills necessary for success in legal practice. Legal educators should embrace the task-based approach and create well-designed tasks that facilitate meaningful language learning experiences for their students.

Conclusion

In conclusion, the task-based approach in teaching legal English offers numerous benefits and opportunities for law students. By engaging in authentic tasks that mirror real-life legal scenarios, students develop their communicative competence, critical thinking, and problem-solving skills. The contextualization of legal English vocabulary within these tasks enhances students' understanding and usage of specialized legal terminology. Moreover, the task-based approach helps build professional language skills necessary for success in the legal field, such as legal writing, oral advocacy, and negotiation. While implementing the task-based approach presents challenges in terms of task design, scaffolding, and assessment, its implications for legal English teaching are vast. Legal educators should embrace this pedagogical approach and create well-designed tasks that foster meaningful language learning experiences, preparing students for the demands and complexities of the legal profession.



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**THE IMPORTANCE OF WORKING IN GROUPS IN TEACHING**

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Abstract

In this article you will be given information about working in groups and its benefits. Mainly, you will response questions, what is team working? Moreover, there can be the number of ways in order to improve team working? Finally, you will be acquired data about positive aspects and drawbacks of team working and the role of working in groups in companies.

Keywords: teamwork, advantages and disadvantages, develop, adults, responsibility, brainstorming.

Introduction

What is the team working?

Team working is really crucial to increase or gain more knowledge. Teamwork is the group of people, who consist of the number of individuals. Teamwork skills are the qualities and abilities that allow you to work well with others during conversations, projects, meetings or other collaborations. Having teamwork skills is dependent on your ability to communicate well, actively listen and be responsible and honest. Working in teams is beneficial because it allows for the division of difficult tasks, making complex projects more manageable and enabling solutions that leverage diverse skill sets. Teamwork in the workplace fosters a collaborative environment where each person contributes different perspectives, which can lead to more innovative solutions and shared success. However, some people prefer to work individually instead of working in a group

The learning process is a vital component of the society since it leads to the acquisition of knowledge that can be used to advance the society. For decades, the modern world has given greater attention to childhood learning. Adult learning has been largely ignored due to a mistaken presumption that people do not learn much after childhood. However, new realities have led to a reconsideration of this wrong assumption. Educators have come to the understanding that adult learning is an important aspect of today's society. Significant research has therefore been carried out on various aspects of adult learning in the recent decades. Some of this research pertains to the best learning environment for adults. This paper will argue that learning in an interactive group leads to higher course completion rate among adult learners. Working on your own can sometimes feel easier. It can be efficient,



you can work on the project in your own time, and you can control the whole processes. There are some good reasons to get involved in group work, though. Whether it's forced upon you by your teacher or boss, or it's a study group you arrange with your friends, group work can be useful in helping you to deepen your knowledge and understanding of issues. One of the most effective ways to keep a course lively and to introduce variety in instruction is to use more than one instructor. We suggest that team teaching, particularly in adult education courses, is a best practice. Whether in a classroom, on a field tour, in using an online class, in using an interactive video format, or in using a hybrid of these methods, there are definite advantages to team teaching. The main benefits of working in group:

1. Setting a goal
2. Improvement of brainstorming (brainstorming- Brainstorming is a method of generating ideas and sharing knowledge to solve a particular commercial or technical problem, in which participants are encouraged to think without interruption. Brainstorming is a group activity where each participant shares their ideas as soon as they come to mind. At the conclusion of the session, ideas are categorised and ranked for follow-on action)
3. Cultivation of effective interaction
4. Handling problems with easy way
5. Increasing sociability
6. Making the plenty of friends
7. Saving time and teaching time management
8. Improving making decision skill

Developing teamwork skills can help you both in your career and when seeking new opportunities. Take time to evaluate your current skill set and identify areas for improvement. With time and practice, you can begin building a strong set of teamwork skills. There can be a lot of ways to develop team working skill.

1. Clarify your task and main aim
2. Learning time management and develop
3. Establish group roles and purposes
4. Do not complain
5. Loving your work that do

Most importantly, If you want to work with team, you will be sociable and have desire, for working with different people. Every time, you will attempt to be positive and energetic, not only cheerful but also smile.

Every coins has two sides, there can be advantages and disadvantages of working with groups, it depends on people, as some people prefer to work individually instead of working group, but for interruption. However, teamwork doesn't happen overnight. It often takes time to bond with one another and understand how people work differently. No matter your role in a team, when you practice humility, are supportive and open-minded, you can reap success together.



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**CORRUPTION AS A CULTURAL AND ETHNIC PHENOMENON**

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Abstract

The topic of corruption has been one of the most attractive for researchers of the widest range during the last decades. The fact is that it is an extremely paradoxical phenomenon, since the theoretical degree of its study, as well as the intensity of practical measures to combat it do not contribute to its eradication or even reduction of its manifestations. At the same time, corruption continues to have an extremely negative impact on the social life of society and its everyday reality.

Introduction

Corruption continues to have an extremely negative impact on the social life of society, on its everyday reality, which is why scholars are striving to expand the boundaries of existing approaches to this "serious violation.

In addition to the destructive social aspect, corruption is characterized by the degradation of individual human morality. Unprincipled power of money is established in society, and money itself acts as a permissive document legalizing the most unworthy manifestations of man. This is the "cynical function of money" that P. Sloterdijk speaks of. In this sense, the danger posed by corruption is self-evident. We will not give any statistical data to show its real scale because any attempts to justify corruption as an economically expedient phenomenon seem immoral, coming from narrow utilitarian considerations.

Another problem that makes the phenomenon of corruption an important philosophical and anthropological topic is its alleged intractability and irredeemability. In this case the appeal to the "criminal nature" of human beings often looks helpless and intensive legal work turns out to be ineffective. It is obvious that the phenomenon of corruption should be studied not only in the sociopolitical and economic spheres, but also in the philosophical and anthropological dimension. The corrupt act is connected with existential, moral and religious manifestations of human nature which require methods of new philosophical analytics for their research. This is the defining thesis of our work, setting the key vector of the study of corruption in the context of philosophical and social anthropology. Undoubtedly, corruption is both a social and an individual evil, and only a comprehensive study of it can contribute to overcoming it as much as possible.

1. One of the main reasons for the inefficiency of state, legal, socio-political and civil anti-corruption measures is that corruption is looked at as an external social phenomenon without analysing the fundamental internal anthropological reasons - existential, moral and religious factors forming the integral human anthropological configuration. Studying the



phenomenon of corruption in the context of philosophical and social anthropology makes it possible to reveal the underlying motives behind the act of corruption, which helps to develop more effective anti-corruption measures as well as to develop measures of anthropological expertise.

2. An essential factor for philosophical and anthropological analysis of corruption is to understand this phenomenon in a broad historical and cultural context, since corrupt behaviour largely depends on the accepted norms and standards of a particular cultural community, which go deep into the traditions and customs of cultural and civilisation systems. We have identified the following parallels between national character traits and patterns of corrupt behavior: deformation of the "sense of kinship" - wide spread of nepotism (cronyism); hypertrophy of moral principles (moral centerism) and low legal culture of opposing corruption; false aspiration to "allness", which generates tolerant attitude to various forms of social evil (including corruption).

3. existential origins of corruption include three main factors which significantly expand the understanding of this phenomenon and help to develop more efficient measures to fight it: deprivation, frustration and deviation. Deprivation is a mechanism revealing human striving for power in general, which is fraught with corruption costs; frustration is a spiritual ailment of modern consumer society seeking to compensate anxiety with irrepressible consumption, which entails corrupt ways of income; deviation is the most complicated form of social behaviour testifying to relativity and conventionality of moral norms and values, including corruption.

4. Corruption by its nature is a complex phenomenon in which sociality has a deep inner connection with anthropological anomalies of personality (moral pathology). This allows us to shift the emphasis from the social and political dimensions of this phenomenon to the personal (moral and anthropological) dimensions. In this context, L. Acton's statement that "all power corrupts, absolute power corrupts ab-absolutely" is criticized, as it is proved that there is no direct connection between power and moral vice. Philosophical anthropological analysis allowed us to identify specific vices inherent in corrupt behavior, such as hypertrophied passion for gain, pursuit of personal gain, greediness and venality. Appeal to T. Hobbes made it possible to reveal the source of corruption as a social evil.

5. The study showed the existence of a deep interconnection between corruption and the religious factor. The economic category "self-interest" is synonymous to such a negative religious concept as "greed", which forms a semantic field with the core "covetousness", the components of which are "hoarding", "usury", "avarice", "greediness", "covetousness", "greediness", "hoarderism", "greed". It is shown that the spiritual potential of Christian doctrine can be the most effective means to overcome corruption as religion realizes spiritual and moral neutralization of deep anthropological sources and properties of this phenomenon.

6. The widespread spread of corruption, in addition to the factor of personal moral depravity, is also caused by a general decline in the spiritual culture of society, which is in a state of value relativism and indifference. This is explained by the axiological shift of the values of consumer society, turned toward hedonism. An indicator of the decline of spiritual culture is the lowering of the status of labor, which becomes primarily a tool of material



enrichment. The transformation of the axiology of labor is largely related to the change in the anthropological status of homo faber, which is being replaced by the anthropological type of symbolic analysts. Honest labor ceases to be a value in modern society, which opens the way to unjust forms of enrichment, among which corruption is the most widespread. We can talk about the interconnection of the following phenomena: decrease in the spiritual culture of society - decrease in the axiological status of labor - spread of corruption. All this requires increasing the social and symbolic status of honest labor, which can become a real restriction of corrupt activities.

Analysis of the mental prerequisites for corruption leads to a fairly clear distinction between "Western" and "Eastern" types of corrupt mentality. Accordingly, each type carries the basic features of the culture within which certain types of corrupt acts are legitimized. This contact problematizes questions about domestic corruption, about its belonging to the Eastern or Western type, how domestic mentality is predisposed to corrupt behavior.

Between national character traits identified by Western philosophy and patterns of corrupt behavior, e.g:

- a special sense of kinship (the philosophy of N.F. Fedorov) - widespread "nepotism";
- the hypertrophy of moral principles (moral-centrism) - lack of legal culture of confrontation with corruption
- the desire for omnipresence - a tolerant attitude towards various forms of social evil (including corruption).

National traits and national values, reflected in the concept of "mentality," are long-term and enduring. In this sense, it is extremely inconsiderate to underestimate the mental factor. The question that arises in this connection is related to the possibilities of interpretation of mental factors, including the fight against negative manifestations of these national traits.

Conclusions:

- the majority of interpretations of corruption come down to the social interpretation of this phenomenon, which has mainly economic, political and criminological origins;
- Among the factors indicating, on the one hand, the difficulty of studying corruption and, on the other hand, the ineffectiveness of existing measures to combat it, are the antiquity and universality of this phenomenon, covering almost the entire known history of human civilisation;
- among the factors influencing the form and intensity of corruption are factors of cultural and elemental order. The typology of existing forms of corruption divides it into Eastern and Western types with inherent features of Eastern and Western culture;
- the most acute and dramatic issue is the question of mental preconditions of domestic corruption, which involves polar points of view on the nature and essence of domestic culture in general.



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**TREATMENT OF DISEASES OF THE CARDIOVASCULAR SYSTEM IN
CARDIOLOGY**

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Abstract

This article provides a comprehensive overview of the contemporary approaches and advancements in the treatment of cardiovascular diseases within the field of cardiology. Through an analysis of current literature, we explore various methods ranging from traditional pharmacological interventions to cutting-edge interventional procedures. The review emphasizes the importance of a multidisciplinary approach, incorporating medications, lifestyle modifications, and innovative technologies to enhance patient outcomes.

Keywords: Cardiovascular diseases, cardiology, treatment, therapeutic advancements, interventional procedures, medications, lifestyle modifications.

Introduction

Cardiovascular diseases (CVDs) remain a leading cause of morbidity and mortality worldwide. As the understanding of cardiovascular pathophysiology evolves, so too does the armamentarium of treatment options. This article aims to synthesize the latest literature on the treatment of cardiovascular diseases, highlighting the diverse strategies employed in contemporary cardiology.

The literature analysis delves into recent studies and clinical trials related to cardiovascular disease treatment. It encompasses the efficacy and safety profiles of established medications such as beta-blockers, angiotensin-converting enzyme inhibitors, and statins, while also exploring emerging pharmaceuticals and their impact on disease management. Additionally, the review evaluates the role of lifestyle modifications, including diet and exercise, in preventing and managing cardiovascular diseases.

The methods section outlines the various approaches employed in the treatment of cardiovascular diseases. This includes pharmacological interventions, interventional procedures such as angioplasty and stent placement, cardiac rehabilitation programs, and novel therapeutic modalities like gene therapy. The discussion emphasizes the importance of personalized medicine in tailoring treatments to individual patient profiles.

The treatment of diseases of the cardiovascular system in cardiology involves a combination of lifestyle modifications, medications, and, in some cases, surgical interventions. It's



important to note that the specific treatment plan will depend on the type and severity of the cardiovascular disease. Here is a general overview:

Lifestyle Modifications:

- Diet: A heart-healthy diet, such as the Mediterranean diet, rich in fruits, vegetables, whole grains, and lean proteins, is recommended.
- Exercise: Regular physical activity helps improve cardiovascular health. Aerobic exercises, such as walking, jogging, or swimming, are often prescribed.
- Smoking Cessation: Quitting smoking is crucial for heart health, as smoking is a major risk factor for cardiovascular diseases.
- Weight Management: Maintaining a healthy weight reduces the risk of cardiovascular diseases.

Medications:

- Antihypertensive Medications: For high blood pressure (hypertension), medications like ACE inhibitors, beta-blockers, calcium channel blockers, and diuretics may be prescribed.
- Statins: To lower cholesterol levels and reduce the risk of atherosclerosis and heart attacks.
- Antiplatelet Agents: Medications like aspirin or clopidogrel may be prescribed to prevent blood clot formation.
- Beta-blockers: Used to treat various cardiovascular conditions, including hypertension and certain heart rhythm disorders.
- Anticoagulants: To prevent or treat blood clots in conditions like atrial fibrillation or deep vein thrombosis.

Interventional Procedures:

- Angioplasty and Stenting: For the treatment of narrowed or blocked blood vessels (coronary arteries) to improve blood flow to the heart.
- Coronary Artery Bypass Grafting (CABG): Surgical procedure to bypass blocked coronary arteries by using blood vessels from other parts of the body.
- Pacemaker Implantation: For individuals with abnormal heart rhythms or conduction disorders.
- Implantable Cardioverter-Defibrillator (ICD): Used to monitor and regulate irregular heartbeats.

Cardiac Rehabilitation:

- Rehabilitation programs may be recommended for individuals recovering from a heart attack, heart surgery, or other cardiovascular events. These programs focus on exercise, education, and support to improve overall cardiovascular health.

Management of Specific Conditions:

- Treatment approaches may vary for specific conditions such as heart failure, arrhythmias, valvular heart diseases, and congenital heart defects.

It's important for individuals with cardiovascular diseases to work closely with their cardiologist to develop a personalized treatment plan based on their specific condition, overall health, and lifestyle. Regular follow-ups and adherence to the prescribed treatment plan are essential for managing cardiovascular diseases effectively.



The discussion section interprets the findings in the context of current clinical practice and future directions. It explores the challenges and opportunities associated with implementing novel therapies, the integration of digital health technologies, and the potential for combining multiple treatment modalities for synergistic effects. Furthermore, the discussion addresses the importance of patient education and adherence to treatment plans in optimizing long-term outcomes.

Conclusions and Suggestions:

In conclusion, this review underscores the dynamic nature of cardiovascular disease treatment. As cardiology continues to evolve, a holistic and patient-centered approach is paramount. The integration of personalized medicine, innovative technologies, and comprehensive lifestyle modifications represents a promising trajectory for improving outcomes in individuals with cardiovascular diseases. Future research should focus on refining existing treatments, exploring new therapeutic targets, and enhancing the accessibility of effective interventions to diverse populations. Ultimately, a collaborative effort among healthcare professionals, researchers, and patients is crucial for advancing the field of cardiology and mitigating the global burden of cardiovascular diseases.

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Abstract

In this article, comments were made about the artistry of the “Ravshan” epic, language riches, lexicon. At the same time, the term linguopoetics was briefly touched upon. The main emphasis was placed on the study of linguopoetics in today’s modern linguistics. Analyzing the language features of this series of epics, attention was paid to their antonyms and their analysis in poetry or prose. The meanings of the antonyms were explained in detail, and their function in the sentence was determined.

Keywords: linguopoetics, antonyms, linguistic units, linguistics, form, text, intertextuality.

Introduction

Language is a mirror that shows the identity of the society and the nation. The way to the heart of the people begins with their knowledge of their native language, respect and attention to their traditions, national values, and loyalty. After all, as our President noted: “While we set the issue of increasing national spirituality as our main task, we have deeply analyzed all the factors and criteria that shape our spirituality and influence it today, it will be appropriate for us to better understand their position in this regard [1,8]”.

For example, today researchers have studied certain works from a linguopoetic point of view. Before researching the work, the researcher should understand the term linguopoetics, study its influence on a certain work. In particular, according to the opinion of the researchers, the basis of the linguopoetic analysis should be the principle of identifying poetically actualized language units loaded with poetic content and evaluating them accordingly. Such an analysis helps to reveal the whole essence of the units in the service of artistic intention, and to make an objective evaluation, while showing the skills of the creator in using the possibilities of the endless wealth of our language. Especially, if such an analysis is carried out on the basis of the works of great word artists, the exemplary aspects of artistic language skills are clearly demonstrated [2, 3].

In fact, to analyze poetic units in the language of a certain work, both skill and poetic knowledge are required. Information about the work is closely related to the use of poetic units. Philosophical figures and linguistic units are included in the most frequently used poetic units in the work of art.

Formation of a categorical approach to the language of an artistic work, the artistic word the effort to study the unity of form and content properties of creation became the basis for



understanding the work of art from an aesthetic and philosophical point of view. In particular, the works of G.E.Lessing, F.Schiller, Humboldt, A.A.Potebnya, V.V.Vinogradov, V.M.Zirmunsky, V.Y.Zadornova, O.S.Akhmanova, G.O.Vinokur, L.V.Shcherba were studied, and their important scientific conclusions were used. In the works of A.Kholodovich "Methodology of literary language", "Linguistic method in poetics", concepts such as the new interpretation of poetic language by the German scientist E.Koseriu, in the new manuals on linguistics and poetics by the French linguists D.Delas and J.Fiyol, by Y.B.Artemenko In his studies on linguo-folkloristics, views on the study of linguopoetics as a separate discipline in the science of philology were stated. A.Lipgart is one of the scientists engaged in researching the theoretical issues of linguopoetics in modern Russian linguistics. The field of linguopoetics of linguistics is characterized by current scientific and theoretical issues, problems, and research tasks. In particular, it is one of the important tasks of today's Uzbek linguistics to observe and study literary creations and examples of mature art from the point of view of linguopoetic features, to consistently conduct analysis, interpretation, and evaluation in this direction [3, 115].

M.Yuldashev, who thoroughly researched the problem of linguopoetics of literary text based on Uzbek language materials, shows the following main features of linguopoetic analysis:

1. An approach based on unity of form and content: In this approach, form and content should complement each other.
2. From the unity of space and time: that is, the space and time given in the text must always be at the same time and period.
3. Evaluation based on the relationship between the universal language and the literary language: giving a general assessment of the language without leaving the standard language framework.
4. Approach to the artistic text as an artistic-aesthetic integrity; to be able to form an artistic-aesthetic unity from the elements used in the text.
5. To identify poetically actualized language tools in the literary text.
6. To determine the ratio of explicitness and implicitness in the literary text.
7. To determine the linguistic and semantic features of intertextuality mechanisms in the literary text [4, 17].

The presence of the above characteristics in all works of art indicates that this work was written in accordance with the spirit of the times, originality of the text of the work, artistic types are fully created in the work.

It is known that since ancient times, every nation, every people, every nation has treated their language with great respect and reverence. In addition, the creative potential of the Turkic peoples is reflected in the large-scale epics they created. In fiction, epics are mainly created in two ways. The first is epics that have been sung orally by Bakhshi in the folklore of the people for centuries. The second is epics created by poets in written form. Epics such as "Birth of Gorogli", "Malikayi ayyor", "Ravshan", "Kuntug'mish", "Alpomish", "Rustamkhan" from the Gorogli series are among the folk works. belongs to the series of epics. Epics of this direction are sung by Bakhshi. In addition to having information about the long historical development of the Uzbek people, folk epics also express the specific



linguistic features of the Uzbek language. What we want to analyze today is the linguopoetics of the epic “Ravshan”.

The legend of Ravshan was first recorded by folklorist Hodi Zarif (1905-1972) in 1928 from the mouth of Ergash Jumanbulbul’s son (1868-1937) and published in 1941. The following poet learned “Ravshan” from his father Jumanbulbul, and he learned from his teacher Kichik Boron. Jumanbulbul and Ergash Bakhshi have a special contribution in polishing the epic and taking the form of a beautiful artistic work. Ravshan’s epic is a beautiful example of rhyming prose (saj). Almost every piece of prose rhymes. The weight of the epic is unique. The poetic part is mainly seven-, eight- and eleven-syllable finger weight. Bakhshi finds a way of describing the hero's mental state, emotional excitement, and the pace of the story development.

In the course of research, we can see that we can see most of the language units in the “Ravshan” saga.

Language is used to describe reality. The assessment of the level of language depends on the thinking of a person. We use antonyms, homonyms, and synonyms to express the meaning of different units as a means of thinking. In the epic “Ravshan”, we can see that antonyms are used a lot: in linguistics, the phenomenon of contradiction is explained mainly by the term antonymy. “Antonymy is a contradiction between two logically provable laws, considerations or conclusions [5].”

You're young, don't be sad

Don't let me know your secret, Ravshanjon,

Be aware of mastons, my child.

*So that the **light** work does not become **heavy** [6, 198].*

In these verses, the antonymy is expressed clearly through the words light and heavy. We know that the whole world has a system of contradictory relationships. That is, there is an opposition between the phenomena. Contradiction is one of the main criteria in existence, and the place of this category in understanding the universe is incomparable. From a philosophical point of view, the opposite side is also important in the study of any phenomenon.

The existence of words with opposite meanings in the language is one of the convenient tools for ensuring the expressiveness, expressiveness, and effectiveness of artistic speech. Eastern literature has been widely used since ancient times to express this language. “One of the most important arts for a poet is poetry. This art is also mutabaqa, tibiaq, tatbiq, muttazad, ittizad and takoju. In this art, experts say, words with opposite meanings are used. In the European philological tradition, this art is called “**antithesis**” [7, 60].”

*Your **father** is in a terrible state,*

*Your **mother** is salty in her pain,*

Walk like both brave and cowardly,

Be diligent, my child, of course [6, 203].

In the above stanza, the antonymic meaning is expressed through the adjectives brave and brave.



The expressiveness of the epic through the use of words with opposite meanings in these verses, increased effectiveness.

The soul of the good is sold

A dagger is thrown at the evil one,

His horse is like a bullet,

Throwing in a waterless desert [6, 221].

The pair of bad-good antonyms is explained in the “Annotated dictionary of antonyms of the Uzbek language” as follows:

Bad 1 - excellent;

Bad 2 (has negative qualities and characteristics, is negatively evaluated, does not meet the requirements);

Good 1 - (has positive qualities and characteristics, is positively evaluated, meets the requirements);

Bad 3 (bad aim);

Good 2 (good aim);

Bad 4 (bad attitude, bad character);

Good 3 (good attitude, good character) [8, 75,180].

It seems that we can observe many forms of antonyms in the “*Ravshan*” epic. The above antonyms have a great influence on the meaning of the sentence. The formal features of words create an opportunity to further enrich our knowledge of semantic development. This reveals the wide possibilities of linguopoetics.

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Abstract

The article provides data on the translation of the Russian language in the areas of agronomy. To improve the conduct of classes and the development of oral speech, use a new pedagogical methodology, SINQWINE technology.

Keywords: Sinkwine, methodology, technology, formation, communication, reflection.

Introduction

The basis of educational technologies is not only the teacher's deep knowledge of the subject, but also his ability to convey it to the student. To help teachers, teaching methods were developed in the classroom, which became the basis for students to develop communication techniques. Thanks to this, it became easier for the teacher to find contact with the audience and interest them in the subject. Teaching methods are so diverse that it is difficult to put them under a single classification. Nevertheless, the unification of methods of work in the classroom is necessary to improve the quality of teaching. Teachers must be clear about what goals are achievable using teaching methods. Understanding the basics of education gives significant results: first-year students have a desire to learn, and even a complex academic subject becomes understandable and interesting for them.

Lessons in which the teacher uses techniques that influence the formation and development of positive motivation allow us to assert that the activity of students increases, the teacher-student, student-teacher relationships become open, positively emotional, productive, the students' performance increases, the number of independent actions based on not only on the rationality, but also on the emotionality of students, cognitive interests are strengthened, and therefore have a positive effect on the quality of knowledge.

It is important for us to make meetings with phonetics, morphology, and syntax not boring and ordinary, but joyful and interesting. It is reasonable and appropriate to use innovative motivational technologies along with traditional forms so that the teacher can captivate the student, and thereby create the basis for better perception of large and complex material.

In modern conditions, it is especially important to organize the learning process so that its educational result is manifested in the formation of a system of vitally important, practically in demand knowledge and skills, which will allow students to adapt to life and approach it actively and creatively. Thus, learning will only become joyful and attractive for students when they themselves are involved in the learning process under the strict guidance of the



teacher, who daily creates conditions for the formation of positive learning motivation. One of my favorite techniques or technologies, which activates the student, teaches him to work independently and develop oral Russian speech in the direction of agronomy, is syncwine. **Sinkwine**” - this technique helps to understand how students have learned the lesson material, motivate, intrigue them with a new topic or update previously acquired knowledge. Cinquain is a poem consisting of five lines and constructed according to special rules: the first line is a noun denoting the subject that will be discussed; the second line is two parallels or participles describing the characteristics of the object; third line - three main goals describing the action of the object; the fourth line is a four-layer phrase expressing the attitude towards the subject; The fifth line is a word synonymous with the first. Since this is the direction of agronomy, I chose this method, the Sinkwine method, based on the directions for the development of students’ oral speech.

Students should mainly express their thoughts about planting and caring for plants in Russian. Creating a five-line story for the development of oral speech is not difficult for students; the advantages of this method lie in the arrangement of words along the lines, as if according to a template. You can use syncwine to compose a simple sentence; **Синквейн**
ra Simple sentence

Simple sentence

One-piece, two-piece

Expresses, shortens, simplifies

One grammatical basis

Syntactic construction

Also, you can offer a syncwine to compose a complex sentence;

Sinkwine and Complex Sentence

Difficult sentence

Non-union, union.

Compiles, complicates, distributes

Has 2 or more grammatical stems

Finished thought

The possibilities of modern pedagogical technologies are limitless and are aimed at improving the educational, educational and applied aspects of the process. A scientific approach to the problem is necessary to eliminate the problem of formally obtaining a certificate, contributes to the emergence of motivation to acquire new knowledge, and improves the direction of education in general.

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APPROPRIATE MODELS FOR MEASURING INTANGIBLE ASSETS AND THEIR IMPACT ON THE FINANCIAL STATEMENTS AND MANAGEMENT DECISIONS: AN APPLIED STUDY IN AL-MANSOUR PHARMACEUTICAL INDUSTRIES

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Abstract

The research aims to focus on two important aspects, namely measuring intangible assets and showing their impact on the financial statements and management decisions. The objectives of the research can be clarified by presenting and discussing the concept of intangible assets and methods of measuring them, presenting and discussing the concept of financial statements and management decisions, and indicating the extent of interest of listed Iraqi companies. In the Iraq Stock Exchange by measuring the intangible assets, in addition to measuring the value of the intangible assets of the Iraqi companies listed in the Iraq Stock Exchange. The research was applied in Al-Mansour Pharmaceutical Industries Company for the period (2016-2020). The research reached a set of conclusions, the most important of which was that (Tobin's Q) model is one of the best models for measuring intangible assets because this model moves away from diligence and personal appreciation, in addition to that this model enhances the principle of comprehensive disclosure, as the current financial disclosure process neglects disclosure For internally formed intangible assets that constitute a large part of the company's assets.

Introduction

The emergence of information technology has led to a significant change in the pattern of the global economy in recent years, as knowledge has become seen as an essential element of capital instead of physical capital, which has led to an increasing interest in the value of intangible assets of companies for the purpose of achieving wealth and income, as well as enhancing the advantage The competitiveness of companies, which contributed to raising their market value, so knowledge and the use of information technology were relied upon, and accordingly, the company's intangible assets are among the main factors to maintain the competitive advantage of companies. Based on this awareness, issues related to intangible



assets become a preoccupation for many industries, however, many companies did not care about the development of intangible assets, although identifying and measuring these assets is an absolute necessity, in light of what companies suffer from intense competition from side of imported products as well as the lack of economic resources.

The first topic: research methodology and previous studies

1-1 Research problem:

The problem of the study is concentrated in the failure of Iraqi companies listed in the Iraq Stock Exchange to measure intangible assets, and thus not to exploit intangible assets in the growth of cash flows of these companies in a way that enables them to achieve profits and growth and enhance their competitive advantage, where the research problem is represented in the following question: Does the measurement of intangible assets affect the financial statements and management decisions in the industrial units?

1-2 Research importance:

The importance of the study comes from the importance of the issue of measuring intangible assets and showing their impact on net cash flows in order to ensure the survival and continuity of companies and achieve competitive advantage, as these companies need to understand the factors and challenges that contribute to their failure to continue in the market as a result of the impact on the financial statements and management decisions.

1-3 Research objectives:

The research aims to focus on two important aspects, namely measuring intangible assets and showing their impact on the financial statements and management decisions. The objectives of the research can be clarified by presenting and discussing the concept of intangible assets and methods of measuring them, presenting and discussing the concept of financial statements and management decisions, and indicating the extent of interest of listed Iraqi companies. In the Iraq Stock Exchange by measuring the intangible assets, in addition to measuring the value of the intangible assets of the Iraqi companies listed in the Iraq Stock Exchange.

1-4 Research hypothesis:

The research is based on the following hypothesis: The measurement of intangible assets can help improve the quality of financial statements and help rationalize management decisions.

1-5 Research community and sample:

The research community is represented by the Iraqi industrial companies, while the research sample is represented by Al-Mansour Company for Pharmaceutical Industries for the period (2016-2020).



The second topic: the theoretical side of the research

2-1 The concept of intangible assets:

Intangible assets are among the things that have attracted the attention of researchers since a long period of time, as Senior Tom indicated in 1836 that the term intangible assets includes a wide range of ideas and perceptions of the intangible components of assets, and intangible assets are considered an economic and administrative concept. Commonly believed to be associated with "human capital" or "knowledge", the terms intangible assets or intellectual capital are often used synonymously (Falzagic, 2005:2).

Intangible assets are viewed as intellectual property, including intellectual property rights such as trademarks, fame, personal and organizational relationships, knowledge, experience, and employee skills. Thus, they are information-based assets that include technology, customer trust, branding, corporate culture, and administrative skills (Bontis, 1998:63).

Intangible assets are the knowledge of the company and are presented at both the individual and organizational levels. At the individual level, it includes individual knowledge, skills and talent, while the organizational level includes elements such as the specific database for each customer, technology, organizational methods and processes, culture, etc. (Johanson, et.al. ,2000:416).

Intangible assets were defined as any form of intellectual property that can be formulated and collected so that they can be used to create more valuable assets, which has increased interest in intangible assets today, especially in determining the discrepancy between the book value of the company according to the accounting records and the market value of the company. An increase in the value of intangible assets and the size of their contribution to the growth of companies has been observed during the past two decades, as intangible assets are seen as a result of companies making the best investment of their human resources, which manage other resources in those companies (Obrien, 2010:22).

Intangible assets exist in economic units in the form of human capital, technological capital and knowledge capital, and it is not possible for companies to continue or compete in the business environment in the long term without looking closely at them despite their great importance in the contemporary business environment (Sharma & Kaur, 2019:102).

2-2 The importance of intangible assets:

Intangible assets have received great attention in recent years for many reasons, including social, economic, political and technological changes that have had an important impact in changing the environment surrounding the work of companies. Due to these changes, it has become imperative for companies to shift from relying on tangible assets to create value for the company to rely also on assets Intangibles, as intangible assets have a major role in achieving company gains, and then intangible assets work to achieve growth in corporate performance (Al-Shamaila, 2015: 18).

Intangible assets are important in generating shareholder value. Moreover, even if investments in intangible assets may negatively affect short-term earnings, they can create actual value in the company and stimulate its growth, as well as contribute positively to increasing wealth. Corporate shareholders (Arslan & Kizil, 2019:101).



Intangible assets are a source of sustainable competitive advantage for companies. In addition, interest in intangible assets will improve investment decisions, negotiations with lenders, and raise investors' capital. The interest in intangible assets such as knowledge and skill, the brand, the reputation of the store, strong relations with suppliers and companies concerned with information technology and concerned with developing means of producing and marketing goods, which provides economic units with a competitive advantage, in addition to that intangible assets enable economic units to increase their resources (Marr et al. 2002:449).

Failure to measure and disclose intangible assets correctly and accurately leads to manipulation of the company's financial statements, which leads to failure to communicate information that reflects the true state of the company's financial information to investors and other parties in the market, and thus this will affect the external dimension of competitive advantage (Buzinskiene, 2017). :15).

In addition to the foregoing, the importance of intangible assets can be clarified through a set of points, as follows: (Johanson, et.al., 2001:410)

1. It provides the company with the ability and competence that contribute to its success.
2. Enables the company's management to make its strategic choices through the optimal use of intangible assets in light of the opportunities available to it and its external environment.

2-3 Appropriate models for measuring intangible assets:

There are many different models presented by accounting thought for measuring intangible assets. Quantitative models for measuring intangible assets can be clarified through the following:

First: The market value to book value ratio model: This model is based on the idea that intangible assets can be measured by making a comparison between the market value and the book value of the company's shares, and that this approach is one of the simplest approaches to measuring the company's intangible assets. The value of intangible assets is calculated according to this model by dividing the market value to the book value of the company's shares (Zambon, 2002:15).

Second: The calculated intangible value model: Under this model, a monetary value of intangible assets is reached, as that value is calculated by comparing the company's performance with the performance of competing companies that own similar tangible assets (Stewart, 2017:26).

Third: The market value model determined by the investor: This model was introduced by Standfield, 1998, which determines the real value of the company from the market value of its shares, which results from four components, which are the real value of the company, tangible capital, perceived intellectual capital, and intellectual capital subject to gradual demise (Malhotra, 2013:98).



Fourth: Return on Assets Model: This model is considered one of the monetary evaluation models that are useful in the case of acquiring intangible assets. The return on assets model shows the relationship of the company's profit to its total assets. Nurnberg, 2016:123).

Fifth: The rate of return on invested capital model: This model is based on the idea that an increase in the rate of return on the invested capital of the company over the corresponding companies in the same economic sector in which it operates indicates that the company has intangible assets, as these assets are not Presentation in financial statements (Osinski et al. 2017:474).

Sixth: The Invisible Balance Sheet Model: This model is considered one of the overall models for measuring intangible assets, and this model does not take into account changes in prices on the value of intangible assets, and it assumes that the total value of intangible assets is due to the increase in the current value of the company's assets for their book value, calculated as the difference between the current value of the net assets and the book value (Osinski et al. 2017:474)

Seventh: The value-added model: This model is based on the concept of the value chain. According to this model, the production process in the company takes place through the value chain links. Raw materials are transformed into products that are marketed and sold, which results in the company achieving added value. According to this approach, the job Productivity is not the only process that takes place when producing the final product in the company (Malhotra, 2013:98).

Eighth: Tobin's Q model: This economic model was proposed by Tobin Games and it relies on defining an indicator used to identify the presence or absence of intangible assets called Q, and this indicator is the ratio between the market value of the company's net assets and the replacement cost or replacement cost of this market value for the net assets of the economic unit, and in the event that this ratio is greater than the correct one, this means that the company achieves a large return on its assets that exceeds the normal rate of return, which indicates the presence of internally generated intangible assets that led to this increase (Talab, 2018:56)), so the basic model for calculating Q is:

$$\text{Tobin's Q} = \frac{\text{The Market Value of Assets}}{\text{The Replacement Value of the Assets}}$$

The Tobin Q model is a development of models for measuring intangible assets, as relying on the replacement cost approach instead of the historical cost approach means introducing the effects of price changes on the company's assets. Intangible assets can be calculated according to this model, by relying on the following equation: (rare, 2016: 35)

$$\text{Tobin's Q} = \frac{\text{MVE} + \text{PS} + \text{DEBT}}{\text{TA}}$$



whereas:

MVE: closing price multiplied by the number of ordinary shares subscribed.

PS: cash value of preference shares.

DEBT: The value of short-term liabilities minus short-term assets and plus the book value of long-term liabilities.

TA: book value of total assets.

2-4 The role of measuring intangible assets in improving the quality of financial statements and rationalizing management decisions:

Intangible assets are important for many companies, and these assets consist of two types, as the first type includes assets that can be distinguished independently, such as copyright and others, while the second type represents those assets that cannot be distinguished from the company, from each other, or even from other assets Such as the expertise and skills of the employees and the administrative competence enjoyed by the company's management, and the importance of this type of assets has encouraged many bodies related to the accounting profession in all countries, such as FASB and IASB, to set standards that deal extensively with the study and determination of the nature and types of those assets, In addition to setting high-quality measurement and disclosure requirements for accounting for intangible assets in companies (Buzinskiene, 2017:56).

Several studies indicated that there is a positive impact relationship between intangible assets and the quality of the financial statements, as the increase in intangible assets leads to an increase in operating cash flows, due to the ability of these assets to generate cash for the main and continuous operations of the company, and the intangible assets are among the assets Which contribute significantly to the generation of economic benefits for the company (Al-Shabil and Ahmed, 2018: 477).

Intangible assets can affect the company's financial statements, through the ability of these assets to generate cash and thus help in increasing these flows and improving the company's performance in general, as well as generating economic benefits for the company, whether these benefits are at the present time or in the future. Which can help increase net income and thus have a positive impact on cash flows from operating activities. Accordingly, intangible assets will have a positive and direct impact on operating cash flows (Al-Amin, 2015: 43).

The accounting measurement and disclosure of intangible assets can help the company's management in making appropriate administrative decisions, as the administrative decision, especially the investment decision, is certainly one of the most important and dangerous decisions that can be taken by the company's management. Therefore, this unit seeks to carry out a process of continuous development of In order to build a database that can help them achieve a sustainable competitive advantage through which they can be distinguished and outperform other companies by making appropriate investment decisions (Gleason & Block, 2006: 303).

Intangible assets also have a significant impact on determining the value of the company, and then their impact on the rationalization and judgment of investors' decisions and



management decisions, so the company is required to take appropriate decisions related to its investments in order to sell or buy these investments or sell or buy assets in order to improve the situation market and support the continuity of the company (Kishko, 2016: 47).

The third topic: the applied side of the research

3-1 An introductory summary of the research sample (Al-Mansour Company for Pharmaceutical Industries)

Al Mansour Pharmaceutical Industries is a public company, listed on Iraq Stock Exchange since November 2004. It operates within the pharmaceutical, biotechnology and life sciences sector focusing on pharmaceuticals. The headquarters of Al-Mansour Pharmaceutical Company is located in Baghdad, Iraq, and it was established in April 1989. The company aims to contribute to supporting the national economy in the field of pharmaceutical industries, cosmetics, and sterilization, to achieve the highest level of growth in work and production, and to adopt the principle of economic calculation and efficient investment of public funds. and its effectiveness in achieving the goals of the state and raising the levels of performance of the national economy in order to achieve the goals of development plans. The company works to develop and expand existing factories and production lines, establish projects and complementary and new lines, purchase and import production requirements or any materials that fall within its production or need, and provide related advisory services. It is active in various departments of the state and the mixed and private sectors, and it markets its production inside and outside Iraq.

3-2 Measurement of intangible assets in Al-Mansour Pharmaceutical Industries Company:

For the purpose of measuring intangible assets in Al-Mansour Pharmaceutical Industries, the (Tobin's Q) model can be used, so the data collected from the research sample company for the period from 2016 to 2020 will be relied upon, and the independent variable represented by intangible assets can be described through the use of the test (Tobin's Q), which represents the ratio of the market value of the company's shares to the replacement value of net assets, The higher this ratio, the more it indicates the presence of intangible assets in the company, even if they are intangible assets formed internally, and thus the matter requires determining the market value of the shares of the research sample company (the number of shares multiplied by the market value of one share) in addition to determining the replacement value of the net Its assets by subtracting extinction from the total assets during the years in question.

The market value of the shares of Al-Mansour Pharmaceutical Industries Company for the period from 2016 to 2020 amounted to (5618), (6433), (5883), (6214) (6553) dinars, respectively, and it is noted that the market value of the shares changes continuously with investors trading shares, It is difficult to predict the actual value because it is affected by the developments of unknown companies, industry trends and economic changes, and the relationship of the share price in trading with the result of the activity of the company whose profits and earnings per share were affected by the high production costs in the company,



weak production capacity, administrative violations and non-disclosure, in addition to the disguised unemployment in this Companies and the failure to improve the type of service and product provided by them in light of the inflation of the capital of some of these companies and the failure to address the observations shown in the reports of the auditors of a number of other companies was another reason for this decrease.

The replacement value of the assets of Al-Mansour Pharmaceutical Industries Company for the period from 2016 to 2020 amounted to (3218), (4532), (4229), (3543) (5341) dinars, respectively, and this cost represents the purchase of the asset or its equivalent in its production capacity in an organized market. For used assets, prices for used assets can be obtained by contacting local and external suppliers, or by offering companies producing such assets, which undoubtedly include the prices of their products from different machines, as they represent the cost of purchasing a new similar asset with a reduction in its price by the difference between the condition of the original subject Evaluation and what distinguishes the new asset from technological progress and advanced production capabilities.

After determining the market value of the shares of the research sample companies and the replacement value of their assets, the (Tobin's Q) test will be used in order to measure whether there are intangible assets or not, as shown in the following table:

Table (1): Measurement of intangible assets using Tobin's Q model for Al-Mansour Pharmaceutical Industries for the period (2016-2020)

Year	Market Value	Replacement Value	Tobin's Q
2016	5618	3218	1.746
2017	6433	4532	1.419
2018	5883	4229	1.391
2019	6214	3543	1.754
2020	6553	5341	1.227
Average	6140	4173	1.507

Source: Prepared by the researcher based on company data.

It can be seen from the above table that all research years have exceeded the (Tobin's Q) test index of the correct one, which indicates the presence of intangible assets formed internally, and the value of this indicator for the period from 2016 to 2020 was (1.746), (1.419), (1.391), (1.754), (1.227) respectively, and thus it can be said that there is a possibility to measure the intangible assets in the Al-Mansour Pharmaceutical Industries Company, the research sample, by dividing the market value of the company's shares by the replacement value of its assets, and the company achieved the highest index in a year 2019, amounting to (1.754), and the average index during the five years of research was (1.507), and this indicates that the research sample company owns internally formed intangible assets.



3-3 Improving the quality of the financial statements and rationalizing management decisions by using the appropriate model for measuring intangible assets in Al-Mansour Pharmaceutical Industries:

Before measuring the impact of intangible assets on the quality of financial statements and decision-making processes in the research sample company, the research variables must be described as follows:

1. The independent variable: The independent variable is the intangible assets of the research sample company, and this variable can be measured using the Tobin Q test.
2. Controlling variables: By extrapolating previous studies, the controlling variables that may be related to the quality of the financial statements and decision-making processes of the company during a certain period can be identified, as follows:
 - a. Company size: This variable is measured by the natural logarithm of the company's total assets at the end of the fiscal year.
 - b. Return on Assets Ratio (ROA): It is the ratio of earnings before interest and taxes to total assets.
 - c. Fixed assets ratio to total assets: It is the ratio of fixed assets of the company to its total assets.
 - d. Net cash flows: It is measured by the difference between the cash inflows and outflows of the company during the research period.
3. The dependent variable: The dependent variable is the quality of the financial statements and decision-making processes, and it is measured by the completion and timely submission of the financial statements, in addition to making decisions that lead to improving the company's operations.

The variables of the model for measuring the impact of intangible assets on the quality of financial statements and management decisions in Al-Mansour Pharmaceutical Industries can be clarified through the following table:

Table (2): Variables of the model for measuring the impact of intangible assets on the quality of financial statements and management decisions in Al-Mansour Pharmaceutical Industries

Year	Log. TA	ROA (%)	Ratio of FA on TA (%)	Net of Cash Flow
2016	0.518	16.801	56.413	6234
2017	0.644	20.324	48.266	8954
2018	0.589	15.898	52.112	126743
2019	0.644	18.354	55.672	7832
2020	0.692	19.044	54.982	9024
Average	0.6174	18.0842	53.489	31757.4

Source: Prepared by the researcher based on company data.

In order to achieve the objectives of the research and test its hypothesis, the following standard model can be adopted to conduct the standard analysis in a manner that is commensurate with the requirements of the current research, as follows:



$$QFS = a_0 + B_1 \text{Tobin's } Q + B_2 \text{Log. TA} + B_3 \text{ROA} + B_4 \text{FA on TA} + B_5 \text{NCF} + e$$

Whereas: QFS: the quality of financial reports followed by the rationalization of administrative decisions in the company, Tobin's Q: the independent variable of intangible assets measured by (Tobin's Q) model, Size: the independent variable related to the size of the company measured by the total assets. ROA: the independent variable of return on assets measured as the ratio of earnings before interest and taxes to total assets. FA on TA: the independent variable for the ratio of fixed assets to total assets, NCF: the independent variable for net cash flows. a_0 : the constant segment. $b_1, 2, \dots, n$: the parameters that were estimated. e : the random error limit. After defining the study model, the descriptive statistics will be explained through the following table:

Table (3): Descriptive statistics for the research variables

Details	Lowest value	Highest value	Arithmetic Mean	Standard Deviation
QFS	0	1	0.600	0.216
Tobin's Q	1.227	1.754	1.507	0.778
Log. TA	0.518	0.692	0.6174	0.215
ROA	15.898	20.324	18.0842	0.324
Ratio of FA to TA	48.266	56.413	53.489	0.227
Net of Cash Flow	6234	126743	31757.4	0.894

Source: prepared by the researcher based on the statistical program (SPSS-24)

It is noted from the above table that the descriptive statistics of the QFS variable were the lowest value (0) and the highest value (1) and the arithmetic mean (0.600) with a standard deviation (0.216), while the Tobin's Q variable had the lowest value (1.227) and the highest value (1.754) and the arithmetic mean (1.507) with a standard deviation (0.778), while the variable Log. TA had the lowest value (0.518), the highest value (0.692), the arithmetic mean (0.6174) with a standard deviation (0.215), and for the ROA variable, the lowest value was (15.898), the highest value (20.324), and the arithmetic mean (18.0842) with a standard deviation (0.324). Ratio of FA to TA, the lowest value was (48.266), the highest value was (56.413), and the arithmetic mean was (53.489), with a standard deviation of (0.227). While the Net of Cash Flow variable had the lowest value (6234), the highest value (126743), and the arithmetic mean (31757.4) with a standard deviation of (0.894). The research hypothesis can be tested by using the standard model that was referred to previously and as shown in the following table:

Table (4): Results of testing the research hypothesis

Independent Variables	R	R ²	F	Sig.F	β_i	T	Sig.T	Dependent Variables
Tobin's Q.	0.812	0.659	5.104	0.05	4.652	2.676	0.05	Financial Statements & Management Decisions
Log. TA	0.635	0.403	4.215	0.05	3.864	2.892	0.05	
ROA	0.564	0.318	4.007	0.05	4.119	3.116	0.05	
Ratio of FA to TA	0.513	0.263	3.144	0.05	3.266	2.431	0.05	
Net of Cash Flow	0.442	0.195	3.513	0.05	4.428	2.554	0.05	

Source: prepared by the researcher based on the statistical program (SPSS-24)



Through the above table, it is noted that the value of the correlation coefficient R between intangible assets and the quality of financial statements and management decisions has reached (0.812), and this indicates that the relationship between these two variables is a positive correlation, and the value of the coefficient of determination R^2 is (0.659), and this explains its value (65.9%) of the variation in the quality of the financial statements and management decisions, as the value of F reached (5.104) at the level of (0.05), and this confirms the significance of the regression, meaning that the increase in intangible assets by (1%) will lead to improving the quality of the financial statements and improving management decisions by (4.652%), Increasing the size of the company by (1%) will lead to improving the quality of the financial statements and improving management decisions by (3.864%). Likewise, increasing the return on assets by (1%) will lead to improving the quality of the financial statements and improving management decisions by (4.119%).), and that an increase in the ratio of fixed assets to total assets by (1%) will improve the quality of the financial statements and improve management decisions by (3.266%), while an increase in net cash flows by (1%) will lead to improving the quality of the financial statements and improving decisions management by (4.428)

The fourth topic: conclusions and recommendations

4-1 Conclusions:

The research reached the following conclusions:

1. Intangible assets are the result of the optimal investment of the human and material resources available to the company and do not have a physical existence. They also contribute to achieving future cash flows for the company, which contributes to increasing the market value as well as improving the competitive advantage of the company.
2. Intangible assets are important for many companies, and these assets consist of assets that can be distinguished independently, such as copyright and others, and assets that cannot be distinguished from the company or from each other, not even from other assets such as the expertise and skills of employees and administrative competence that it enjoys company management .
3. There is a positive impact relationship between intangible assets and the quality of the financial statements, as an increase in intangible assets leads to an increase in operating cash flows, due to the ability of these assets to generate cash for the main and continuous operations of the company, and intangible assets are among the assets that contribute significantly in generating economic benefits for the company.
4. Intangible assets can affect the company's financial statements, through the ability of these assets to generate cash and thus help increase these flows and improve the company's performance in general.
5. The accounting measurement and disclosure of intangible assets can help the company's management in making appropriate decisions, as the administrative decision, especially the investment decision, is certainly one of the most important and dangerous decisions that can be taken by the company's management.



4-2 Recommendations:

The research recommends the following:

1. Using the (Tobin's Q) model to measure intangible assets because this model moves away from diligence and personal appreciation, in addition to that this model enhances the principle of comprehensive disclosure, as the current financial disclosure process neglects the disclosure of internally formed intangible assets that constitute a large part of the company's assets.
2. Evaluate intangible assets continuously from one period to another, with the need to determine the impact of these assets on each of the total cash flows from one period to another, and work to take actions and measures that will improve the net cash flows of the company.
3. The necessity of measuring and disclosing the intangible assets formed internally, because these assets are among the basic pillars for building economic progress and the success of companies, and thus transforming these resources into added value for these companies.
4. The need for companies listed in the Iraq Stock Exchange to pay attention to the issue of measuring intangible assets and to disclose these assets in the quarterly and annual reports prepared by these companies.
5. The dependence of the joint-stock companies listed in the Iraq Stock Exchange on the data of this study and the adoption of the specific methodology and preliminary steps for measuring intangible assets and indicating their impact on the financial statements and administrative decisions.

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**SOME COMMENTS ON THE TERRITORIAL LOCATION OF THE TRIBES
THAT LIVED IN THE EARLY IRON AGE IN KHOREZM**

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Abstract

The favorable environment for cattle breeding of the ancient Khorezm oasis was the reason for the settlement of nomadic herders from the earliest times. The lower reaches and valleys of the Amudarya often served as villages for cattle herders. In this article is analyzed nomads, which migrated from the north, northeast and north-west in different historical periods. During the Bronze and Early Iron Ages, nomadic herders arrived, adapted to the conditions of this land, and adopted a semi-sedentary lifestyle.

Keywords: semi-sedentary lifestyle, nomads, geographical situation, Late Bronze Age, Early Iron Age.

Introduction

The natural climatic and geographical conditions of the Khorezm oasis are favorable for the development of livestock farming. The oasis is surrounded by deserts on all sides: Karakum to the south, Kyzylkum to the east, Arol-Caspian lowland and Ust Yurt plateau to the west. The connection of the Aral Sea and Kazakhstan to vast desert areas from the north created a great opportunity for the movement of nomadic herders. Along the lower basins and valleys of the Amudarya, there were groves, large areas of reeds, serunum pastures, which were very convenient for the development of livestock farming.

It is known that Khorezm oasis was situated at the crossroads of migratory tribes of steppe livestock breeders. From Khorezm, livestock breeders passed to the south-west of Turkmenistan through the Uzbay river-bed coasts and the eastern Caspian Sea, to the territories of Zarafshan and Murghab oasis and to the Bactrian region along the right and left banks of the Amu Darya¹. The climate of the Khorezm oasis is sharply continental, with very hot summers and very cold winters. Lack of precipitation leads to drought for most of the year.

¹ Sagdullaev A., Abdullaev U., Togaev J. Features of historical and cultural development in different geographical conditions (in example of Central Asia). // Society and innovations. 2020. P.273.



Analyzes and Results

As we know the cultures of the Bronze Age in Central Asia are studied according to the lifestyle of the population and the leading forms of economic activity dividing into the following regional groups: 1) South-west of Turkmenistan. Front of Capet Mountain, Atrek River oasis (North Parthia and Dagestan). 2) Lower Murgab oasis (Margiana). 3) Northern Afghanistan, Surkhan oasis (Bactria). 4) Southern Tajikistan (Bactria). 5) Zarafshan oasis (Sogdiana). 6) Southern Aral Sea (Khorezm oasis). 7) Tashkent oasis (Chach). 8) Fergana Valley and Tyanshan (Yettisuv Group)² The favorable environment for cattle breeding of the ancient Khorezm oasis was the reason for the settlement of nomadic herders from the earliest times. The lower reaches and valleys of the Amudarya often served as villages for cattle herders. Nomads migrated from the north, north-east and north-west in different historical periods. During the Bronze and Early Iron Ages, nomadic herders arrived, adapted to the conditions of this land, and adopted a semi-sedentary lifestyle.

In the Late Bronze Age and the Early Iron Age, traces of tribes engaged in animal husbandry and primitive agriculture were found in the area of the Amirabad canal, which was taken out of the Okchadarya basin in the eastern part of the Khorezm oasis. Based on the name of the channel, the researchers called it the Amirabad culture. It is BC. It was formed as a result of the fusion of the Bronze Age Suvyorgan and Tozabogyob cultures in the IX-VIII centuries. The people of Amirabad were originally cattle herders, and they also engaged in wheat farming. They made wide, shallow and short canals from the river bed and were engaged in agriculture and handicrafts.³ The remains of the Amirabad people have not survived to this day, and their scattered traces have been studied mainly on the basis of the accumulated traces of pottery. The Amirabad culture is widespread in the southern part of Karakalpakstan in the northern part of the current Amirabad canal. This culture is located on the border of deserts and barrens.

In 1937, in the remote areas of the western part of the Burgutkala district, the first pottery of Amirabad people was found. It was identified by A.I. Terenozhkin. Pottery is made of unmixed clay, handmade and fired. Later, it was also found in Teshikkala and Jonboskala. In 1940, a lot of them were found in the northeast of Narinjan district, between Kosh-parson and Yakka-parson. Traces of the people of Amirabad were also found along the Zhonboskala hill to the east, in several kilometers of places connected to each other, and along the canals passing through the south of Bazarkala. At the last stage of the Amirabad culture, i.e. in the VIII-VII centuries BC, the inhabitants built big long mud houses. Jonboskala-7 stretches along the hill from west to east. It is 77 meters long and 20 meters wide. The walls were 1.5-

² Sagdullaev A., Abdullaev U., Togaev J. Features of historical and cultural development in different geographical conditions (in example of Central Asia). // Society and innovations. 2020. P.269.

³ Baratov S.R. Nekotorye problemy archeologicheskikh issledovaniy drevnih kultur Khorezma. - S. 25.



2 meters thick⁴. The long house is divided into two parts by a wall parallel to the outer wall from the inside. The width of one side is 10 meters, the other is 5 meters.

S.P. Tolstov refers to the tribe that left the Amirabad culture as the Massagets⁵.

Although little attention was paid to this aspect in subsequent studies, some archaeologists agree with S.P. Tolstov's opinion. These were the first Saka tribes, who left behind their bushy two-bladed flat bow arrows. These arrows are from 100,000 BC. It resembles Scythian arrowheads of the VII-VI centuries.

The transition of nomadic tribes to the period of settlement can be observed in Amirabad culture. Animal husbandry was considered the leading type of economy in them. At the same time, they built huts and long mud houses and engaged in irrigated agriculture.

Yakka Parson 2 of Amirabad is well-preserved⁶. Traces of a canal from that period were also found near the place. Yakka Parson 2 is located 2 km southwest of the medieval Yakka Parson Castle. located far away. Traces of more than 20 semi-basement houses were found in the area. They are built in two rows. Some basements are connected to each other by corridors. Around the basement, many holes were found. A lot of pottery and bones were found in the cultural layer of the place.

Amirabadians occupied a large area of the southeastern part of ancient Khorezm in the early Iron Age. Due to the fact that they used a unique irrigation system in farming, they moved. Their channels are made from old riverbeds or small tributaries. When the soka was washed away or the ditches were filled with mud, they moved to another place and built a new water network. It was more convenient for the people of Amirabad to build a new canal than to clean the canal. Because after cleaning the canals and ditches several times, the banks became high, and it required less labor to dig a new ditch than to clean it again. That's why new ditches were built next to the old ditch⁷. According to the researchers, the canals were lengthened, widened and branched in the process of diverting the natural water tributaries to the fields. According to S.P. Tolstov, BC From the end of the 8th century, large artificial canals with a width of 40 meters began to be built⁸.

S.P. Tolstov also built huts for summer residence near the semi-cellars found in Yakka Parson 2. The people of Amirabad built the entrance of their dwellings facing the stream. Traces of half-cellars being flooded twice were found. According to the researchers, this may have happened during the summer, because strong floods coincide with the summer season. The half-cellars are rectangular in shape, built with wooden posts, surrounded by reeds, and covered with mud plaster. Each house had one hearth and it was built in front of the entrance door. The people of Amirabad made ceramics by hand. They were rough and had thick walls. A lot of small pebbles are added to the clay. The bottom is flat, the belly is

⁴ Tolstov S.P. Drevny Khorezm. -M.: 1948. -S.70.

⁵ Tolstov S.P. Ancient Khorezm.-S.68.

⁶ Tolstov S.P. Po drevnym delta Oksa and Yaksarta. - S. 68-77.

⁷ Andrianov B.V. Drevnie orostelnye sistemy Priaralya. - S. 113.

⁸ Tolstov S.P. In search of ancient Khorezm culture. - Tashkent, 1964. - B. 360; Nizovya Amudari. - S. 183.



round, the flange is suddenly curved or short. The surface of the pottery was black or black-gray. Among them, there were those decorated with arch-like carving along the rim of the vessel. Pottery belonging to the Amirabad culture was found in the Bazarkala monument. They are handmade and decorated with light red color⁹. The people of Amirabad were a whole community and engaged in cooking pottery together. They did it in open settlements or special hills¹⁰. If an earthenware pot is cooked in large open fires, the pot is cooked well and does not darken around it. Among the ceramics found in the Amirabad culture are well-baked vessels. They started using the hand wheel from the last Amirabad period. S.P. Tolstov shows that there is a similarity with the pottery made by the early Scythian tribes of Eastern Europe.¹¹

S.B. Bolelov researched the handicrafts of the people of Amirabad. The scientist found a bronze casting mold made of 4 stones and fragments of a crucible with drops of copper alloy from the half-basement of Yakka Parson 2 monument. The researchers named this semi-basement "the metal caster's house". Two of the stone molds were for bow arrows, and one was a sickle mold. Household and farming items such as knives, sickles, bronze mirrors, beads, bracelets, blankets, and rugs were found in the monument. The people of Amirabad produced handicrafts for the internal daily needs of the members of the community.

In the VIII-VII BC centuries, as a result of the decrease of water in the southern Okchadarya basin, the people of Amirabad left these areas.¹² Some of them returned to nomadic livestock farming and moved to the northern Akhchadarya, ancient deltas of the Syrdarya and Sarikamish river basins. Another part moved to the west and went to the Sarikamish delta. BC At the end of the 8th century - at the beginning of the 7th century, the water in Sarikamish basins increased. With the increase of water, sedentary, semi-sedentary and semi-nomadic pastoralist tribes settled here. Initially, the culture of this herding population was identified in 1953 by the archeological-topographical detachment of the Khorezm archaeological expedition headed by B.V. Andrianov from the Quysai-kyr hill. Since 1971, Khorezm archaeological-ethnographic expedition began to study it on a stationary basis. In the 70s of the 20th century, it was studied by V. I. Weinberg and called it Kuyisoi culture¹³. Monuments of Kuyisoi culture were found only in the southern part of Sarikamish delta of Amudarya. The settlements of the Kuysai people are located along the coast of Southern Daudan, but no traces of artificial irrigation systems have been found here. According to the researchers, after the water appeared in the Sarikamish delta, it first came to this place in 1000 BC. In the 7th century, there were Kuyisoi who came from the regions along the

⁹ Ghulomov Ya.G'. Khorezm irrigation history. - B. 81.

¹⁰ Bolelov S.B. Raniy etap stanovleniya remeslennogo proizvodstva na territoriyi Khorezma. - S. 5.

¹¹ Tolstov S.P. Ancient Khorezm. - S. 77.

¹² Yagodin V.N. Genesis and formirovanie rannehorezmiyskoy gosudarstvennosti. -S. 115; Yusupov H.Yu. Poselenie epoxi pozdney bronzy na Kanga-gyre.//Skotovody i zemledeltsy Levoberezhnogo Khorezma. — Moscow: 1991. — P.109-112.

¹³ Weinberg B.I. Ethnography Turana v drevnosti. - S. 23.



Southern Island¹⁴. The favorable natural geographical environment in the Sarikamish delta led to the rapid occupation of large areas by the lowlanders. Although the cultural traces of Kuysoi people have been preserved in many places, their places of residence have not been well defined. Among them, the cultural layer of Kuyisoy 2 monument is well preserved. Kuyisoy-2 settlement is 13 km from Shokhsanam castle, located in the north-east. The inhabitants lived in chaylas. Due to the fact that the Kuyisoy 2 site is under murky water, the structure of its sediments is not clear. Only one teacup is better preserved. It has an oval shape and an area of 100 sq.m. and the traces of the columns were identified. The entrance to the hut was on the south-west side. There is a hearth on the south side of the entrance. Cultural layer 60 cm. organized. Ceramic vessels made in 7 different circles, i.e. regions, have been identified from Chayla. Three of them are from Archaic Dagestan, one from northeastern Iran, and the rest are similar to Yoz II pottery. A bronze arrowhead with a two-parallel rhomboid bushing, a nail-shaped lead earring, turquoise beads, an iron knife, a clay spear, stone cores, pieces of blankets, and turquoise stone fragments were found. There were many remains of animal bones. Ceramics are made by hand using tape technique. Pottery was fired twice in the fire. The pottery itself was baked for the first time, and the pottery turned gray. After being painted with red angob a second time, it was re-baked. Most pottery is undecorated. This is a unique feature of pottery of Kuyisoi culture. Scratched lines are observed on pottery vessels with a specific shape used for certain purposes. The large pottery vessels were not made by hand, researchers believe that they may have been worked on a wheel. Although the people of Kuyisoi know the pottery wheel, the pottery they use in the main household is made by hand.

Kuisoi culture BC. It belongs to the 8th-5th centuries, and its inhabitants lived in semi-basements and shacks, engaged in animal husbandry, dry farming, crafts - metallurgy, pottery, bone and turquoise stone processing.¹⁵ Material sources related to Quysisoy culture were found and studied in Quysisoy-2, Yassiqir villages, Sakarchaga, Tumek-Kichijik burial mounds, Tarmkoya village and cemetery.¹⁶ Horse and sheep lovers (astragalus) were found inside a limestone circle in Sakar-Chaga 3 burial mound.¹⁷

However, in contrast to the cultures of Tozabogyab and Amirabad in Khorezm, the Chust culture was more settled. Their settlements were located in separate farming oasis, the use of wattle and daub walls and raw brick began in construction and large urban centers were surrounded by defensive walls¹⁸.

¹⁴ Kochevniki na granitsax Xorezma. –S.8.

¹⁵ Weinberg B.I. Pamyatniki kuyusayskoy kultury. – S. 23.

¹⁶ Weinberg B.I. Pamyatniki kuyusayskoy culture. - S. 7-77; Bolelov S.B. The question of the formation of rural culture in Amudari. - S. 17-26.

¹⁷Yablonsky L.T. Saki Yuzhnogo Priaralya (archeology and anthropology of Mogilnikov). - Moscow: TIMP 1996. - S. 15-18.

¹⁸ Sagdullaev A., Abdullaev U., Togaev J. Features of historical and cultural development in different geographical conditions (in example of Central Asia). // Society and innovations. 2020. P.274.



In the north-western part of the Khorezm oasis, many material relics of nomadic herders were found. In this area is the Ustyurt Plateau, the nature of which was considered favorable for the development of nomadic cattle breeding. Ustyurt is located between the Aral and Caspian seas. Today it is divided between the Republic of Karakalpakstan, the Republics of Kazakhstan and Turkmenistan. Due to the harsh natural conditions of the Ustyurt Plateau, it is very difficult to carry out archaeological research there. Nevertheless, archaeologists have discovered many relics of nomadic pastoralists there. Most of the monuments are located on the southeastern slopes of Ustyurt. Archaeologists have discovered many fortresses, burial mounds, cemeteries, and religious complexes there. According to the researchers, the first nomadic herders - Sauromatians and Sarmatians were widespread in this area during the period of the last Sarmatians.¹⁹

Conclusion. During labor and production, nature was the main object of human activity and in different geographical conditions; certain economic and cultural types were developed. This legitimacy of historical and cultural development is also confirmed by the example of the Bronze Age history of Central Asia²⁰. Geopolitically, the Ustyurt Plateau occupies an intermediate distance between the farming culture in the south and the nomads of the vast Eurasian steppes in the north. For this reason, in the culture of the inhabitants of the Ustyurt plateau, we see a mixture of the culture of the southerners and the nomadic tribes of the north. In the 60s of the 20th century, the Mizdakhkan Dahma dating back to the 3rd century AD was studied in the northwestern part of the Khorezm oasis. In the Duan Cape in the western part of the Aral Sea, many tombs and mounds of nomadic herders of different periods have been found. Monuments of settlers from the Early Iron Age were also found in the Borsa Kelmas pit and in the western belt (chink) regions. During the last bronze period, complex historical processes were manifested in the southern regions of Central Asia – Parthia, Margiana and Bactria. As a result of the steppe cattle breeders' coming into the oasis, there appeared significant changes in the material culture, funerals and beliefs of the people²¹.

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¹⁹ Yagodin V. N., Kitov E. P., Mamedov A. M., Jambulatov K. A. Stepnye plemena na severo-zapadnykh granitsakh Khorezma v VI-II vv. do n. e. - II-IV vv. n. e. (po materialam kurgannogo mogilnika Kazybaba I). - Samarkand, 2022. - P.340.

²⁰ Sagdullaev A., Abdullaev U., Togaev J. Features of historical and cultural development in different geographical conditions (in example of Central Asia). // Society and innovations. 2020. P.275.

²¹ Sagdullaev A., Abdullaev U., Togaev J. Features of historical and cultural development in different geographical conditions (in example of Central Asia). // Society and innovations. 2020. P.275.



3. Bolelov S.B. Raniy etap stanovleniya remeslennogo proizvodstva na territoriyi Khorezma. - S. 5.
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ROLE OF INTERNATIONAL TRADE LIBERALIZATION IN THE ECONOMIC DEVELOPMENT OF THE COUNTRY

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Abstract

In this article, the impact of international trade liberalization on economic growth is considered based on various international trade theories, including the concepts of export subsidy and protectionism, explained with hypothetical examples. At the same time, it is explained why developing countries choose such a path. It also analyzes how current protectionism is justified and how free trade is advocated, and who wins and loses because of it, in indicators and arguments.

Keywords: GDP, free trade, Makhkum's dilemma, Nash equilibrium, infant industry, economic security, trade instruments, tariff, protectionism, Heckscher-Ohlin model.

Introduction

Protectionism undermines this multilateral cooperation, delaying further liberalization of international trade. Against this backdrop, this study assesses the impact of trade liberalization on economic growth using hypothetical examples.

The results show that trade liberalization has a positive effect on economic growth. Firstly, by increasing prosperity, secondly, by attracting direct investment, and thirdly, it can help diversify exports by helping to reduce trade costs and trade liberalization. In turn, export diversification can help economic growth. Fourth, multilateral level cooperation on trade issues between WTO (World Trade Organization) member states is also important for other financial issues, such as global financial and monetary cooperation, climate change issues, and international terrorism. can help multilateral cooperation on international security issues such as war

Review of Literature

One of the most discussed topics is the relationship between international trade and economic development, particularly economic growth (Singh 2010, Salvatore 2011). Researchers have mainly studied the theoretical and empirical links between international



trade and economic growth. Surprisingly, little attention has been given to the impact of multilateral trade liberalization. In theory, trade liberalization allows resources to be redistributed from areas of comparative disadvantage (when resources are in excess) to areas of comparative advantage, thereby increasing incomes and promoting a transition to a stable state. Trade liberalization initially puts national producers under stronger competitive pressure, reducing their share of the domestic market relatively. At the same time, in the process of this 'natural selection', if the national producers achieve an increase in competitiveness, the strongest among them will have the opportunity to enter international markets. Thus, while trade liberalization may have a short-term negative impact, it will have a positive impact on economic growth in the medium and long term.

Falvey (2012) used marginal regression techniques including a single log (i.e., a two-regime model) to test whether an economic crisis was a good time for countries to implement trade reforms. In particular, they examined whether there is a differential impact of growth in crisis and non-crisis regimes. Their findings show that trade liberalization increases economic growth in both the crisis and post-crisis periods, but domestic crisis leads to lower economic growth. A study by Kristianen (2013) ¹using the GMM econometric approach suggests that trade liberalization has a positive effect on economic growth. Egger et al. (2004) used numerical simulation models to examine the impact of multilateral and bilateral trade and investment liberalization on countries' welfare and convergence to GDP per capita. In general, they were convinced that net multilateral trade liberalization could help increase welfare.

The purpose of this study is to contribute to this field of literature by examining the impact of multiple trade liberalization on economic growth.

Research Methodology

As a theoretical and methodological basis of this article, general economic literature and scientific articles, analysis of written and oral opinions of economists about the importance of raising international trade to a higher level, expert evaluation, observation of processes, conclusion based on a systematic approach to economic phenomena and processes, suggestions and recommendations are given.

Assessment of the multifaceted effects of trade liberalization on economic growth is based on the standard growth literature. In order to better and more fully understand the analysis that we will carry out below, we will first systematically touch on the theoretical and practical materials of trading. In particular, we consider the Nash equilibrium model, which includes trade instruments that influence economic growth of trade liberalization.

Analysis and Discussion of Results

We are talking about protectionism, which is legal for free trade, but restricts free trade. We need protectionism for two purposes. First, to reduce unemployment, and secondly, to improve the country's balance of payments deficit (the preponderance of the people's

¹ Gaussian Mixture Model



expenses from abroad over the income received from abroad). This can be done by replacing imports with domestic production in both cases. But this situation is considered a make-your-neighbor-poor protectionism, because the gains made through protectionism come at the expense of other nations' opportunities. Protectionism creates higher unemployment abroad and a larger worsening balance of payments. As a result, other nations may respond to us and turn to protectionism themselves, and in the end, all countries will lose. Another reason for the use of protectionism is the presence of primary industries. Assuming that a country has a comparative advantage in the production of a particular product, but due to lack of know-how and the ability to produce small quantities at the beginning or to create an industry, even if it has already started, well cannot compete with well-known and established foreign firms. Temporary trade protectionism can be understood as the application of domestic industry until it becomes competitive in its infancy and until full production reaches economic scale (full capacity) and long-term comparative advantage of the state. And finally, when this is achieved, protectionism should be removed. It is very difficult to determine which industry should be so protected, and experience shows that once protectionism is granted it is very difficult to remove it. It is important to note that trade protectionism (for example, import tariffs) works for primary industries, but the same amount of production subsidy works better. A production subsidy is direct aid and is considered an easier method to eliminate than an import tariff.

Raising product prices through tariffs, i.e. trade protectionism, is good for producers but puts consumers at a disadvantage. But producers are few and support protectionism very well. On the other hand, through protectionism, the losses due to high prices are distributed among many consumers and become small and imperceptible, and since each consumer loses little from this protectionism, it is difficult for them to effectively integrate with each other and resist it. . As a result of some studies, Hillman (1989) notes that highly organized industries (for example, Automotive) enjoy higher protection than less organized industries. Only an industry with fewer campaigns can organize well. In addition, more protectionism occurs in industries that are geographically dispersed and employ large numbers of people than in industries operating in smaller regions. Large numbers of workers will have a strong voice in electing government officials who support protectionism for industry. Decentralization means that elected government members from many regions support protectionism. Another theory suggests that an industry that is protected first is more likely to be protected later. It becomes clear that, regardless of who wins and who loses, the government does not want the wages of industries to decrease due to redistribution of wages, that is, the removal of protectionism, but as a result, prices will fall and consumers' money will start to be spent more. Finally, industries that compete with developing countries are more easily protected because developing countries have less economic and political power than industrialized countries, which can effectively counter trade barriers to their exports. Now we will analyze the cases that can be achieved by full liberalization of international trade. Below are the economic gains for developing countries from full liberalization of international trade in agriculture, textiles, and other manufactured goods, in billions of dollars, per capita dollars, and percentages of GDP (Gross Domestic Product). All in 2015



accounts. In the first line, the gain from full liberalization of international trade to agriculture (inclusive), 56 billion. Textiles and other manufactured goods may benefit somewhat less after full liberalization of international trade. In this case, the total income of the developing countries will be 90 billion and it will increase the GDP by 17.59 dollars per person, or 0.80 percent.

Liberalized sector	Developing countries
	Total accounts, in billions of dollars
Agriculture	56
Textile	24
Other manufactured goods	10
In general	90
	Per capita, in dollars
Agriculture	10.95
Textile	4.69
Other manufactured goods	1.95
In general	17.59
	Percentage of GDP
Agriculture	0.50
Textile	0.21
Other manufactured goods	0.09
In general	0.80
Source: K. Anderson and W. Martin, ed., <i>Agricultural Reform and the Doha Development Agenda</i> (Washington, DC.: World Bank, 2015), Ch. 12.	

We know that the two countries, Uzbekistan and Kazakhstan, have only two political choices in trade relations with each other: free trade or protectionism. Two countries can work together and trade freely and both have billions of dollars (Kazakhstan 1.47 billion dollars and Uzbekistan 0.65 billion dollars) or work separately and protect themselves as a result billions of dollars (Kazakhstan 0.36 and 0.36 billion dollars Uzbekistan may lose 0.16 billion). As in the Nash equation, the so-called Prisoner's Dilemma states that if countries act individually without agreeing internationally to eliminate restrictions and restrict their free options, they both lose (according to the Nash equilibrium, both countries are protectionist it is obvious that they will go to politics) we see. The involvement of presidents is so important that this bad outcome can be avoided if the states come to an agreement.

Many developing countries in the world have moved from their traditional role as mere suppliers of raw materials to their new status as industrialized countries to protect manufactured goods through import tariffs and quotas. In theory, the argument for protecting start-up industries, especially for high-tech industries that increase a country's ability level, can be convincing. The reality is more complicated: often only sectors with political influence are protected. Also, local entrepreneurs tend to be poor forecasters when it comes to predicting the best emerging technologies. Using the Heckscher-Ohlin theory, we will try to imagine what kind of goods and products we should export and import in the future. At



the same time, as a result of research, we will theoretically prove which areas should be invested.

	Absolute advantage:	Comparative advantage	Heckscher-Ohlin-Samuelson (HOS) model
Technology	The same	The same	The same
The movement of factors of production within the country:	There is	There is	There is
Movement of factors of production between countries:	Not available	Not available	Not available
Factors of production:	Labor force	Labor force	Manpower & Funding
The result:	X	x	√

Absolute advantage: countries specialize in producing the best. There should be absolute competition with zero transportation costs. Countries trade the same goods. At the same time, there should be a situation of "constant returns to scale".

Information on export-import composition of Uzbekistan (Uzbekistan Almanac, 2016) presents export-import goods of Uzbekistan. The Heckscher-Ohlin model shows that Uzbekistan has a relatively medium-skilled labor force. Uzbekistan buys products that require low-skilled labor, such as non-ferrous and ferrous metals. Automobiles and chemical products and products related to chemical products actively use capital as factors of production. Imports of capital intensive goods support the HO model. The Heckscher-Olin theorem - the country exports goods that use relatively abundant and cheap factors in production, and imports goods that require relatively active use of scarce resources in the production process (Samuelson). Imports of ferrous and non-ferrous metals support the Heckscher-Ohlin model because these metals require lower-skilled labor. Also, exporting cotton fibers favors the Heckscher-Ohlin model, as Uzbekistan is relatively land-rich for crop production, with more irrigated land available. And finally, for us, the Heckscher-Ohlin theory served as a good mechanism for measuring the labor of Uzbekistan's exports and imports based on the skills of workers.

After looking at the HO model, we will discuss what products we should produce for export and what products we should reduce existing tariffs to import more. As Uzbekistan has enough resources, we can produce raw fertilizers, organic chemicals, inorganic chemicals, dyes, fertilizers, primary forms of plastics, non-primary forms of plastics, chemical materials. and we can use more exports of products such as products. As we said, since the population of the country has a relatively medium-skilled labor force, in the future we should emphasize the export of the following goods: raw fertilizers and minerals, perfumes, cosmetics and cleaning products, products that generate electricity, telecommunications. and sound equipment, electrical equipment, road vehicles, other transport equipment, furniture and spare parts, professional and scientific instruments, photographic equipment, watches.



Summary

In general, the results obtained for all samples show that trade liberalization has a very strong positive effect on the economic growth rates of countries. Liberalization of international trade brings high income to the state. It helps governments provide the basic infrastructure needed to stimulate economic growth. Proposals at the government level suggest that the adoption of trade protection measures will trigger a trade war, reducing the possibility of greater cooperation between countries to move forward with trade liberalization. As a result, countries' economic growth and development prospects may be negatively affected.

We have seen with examples that crop trade is preferable to protectionism. Based on the theories of international trade, the analysis using hypothetical examples shows that trade liberalization has a positive effect on economic growth. It has been proven in trade theories that the removal of barriers to free trade leads to an efficient allocation of resources and ultimately brings economic gains for all countries. In this regard, their participation in free trade between the two countries, that is, Kazakhstan and Uzbekistan, is beneficial for both countries.

But there are other factors that must be taken into account that cannot be overlooked. It is a matter of creating jobs, increasing economic dependence, economic security, improving the country's balance of payments deficit, due to the lack of know-how and the possibility of production in small quantities at the beginning, competition with well-known and established foreign firms. Quantifying the primary industries' arguments because they can't (that is, quantifying the damage caused by them) shows that the scales don't always tip heavily in favor of free trade. There are conflicting opinions about the role of the state in the industrialization of Uzbekistan. Interestingly, Anglo-Saxon European economists were initially not interested in industrial policy because they believed in the superiority of neoclassical precepts. We can recognize industrial policy as a new approach to economic development. Neoclassical economists center the market and limit the role of government in maintaining macroeconomic stability, providing infrastructure and public goods, and redistributing the common wealth. From the neoclassical point of view, the allocation of resources is carried out by the market itself.

A country's comparative advantage is determined by the country's resources, and the allocation of resources is based on this, that is, the resources of production are transferred to industries that produce goods in which the country has a comparative advantage. Finally, proponents of the neoclassical view argue that free trade leads to an efficient allocation of resources. This is because free trade determines the relative prices of traded goods. In short, according to neoclassicals, market forces, rather than government intervention, lead to efficient allocation of resources based on price signals. However, in a developing country like Uzbekistan, the government uses the introduction of incentives and subsidies as an effective means of resource allocation.

Suggestions

The welfare of national consumers and the competitiveness of our national manufacturers can be increased by liberalizing trade in areas of simple production such as daily



consumption goods and products. As stated in Michael Porter's theory of organization of competitive advantages, in today's society, countries should create competitive advantages for their industries and firms. For example, creating a favorable economic environment for the development of the domestic market and entrepreneurship.

While the first post-independence generation is now industrializing in an era that tolerates protectionism for developing countries, the second generation may not face such a favorable global trading system. Industries whose development is considered necessary for industrialization (for example, steel, chemical, mechanical engineering, oil refining) should be supported by governments. This is because these sectors require large-scale investment and governments recognize that private firms cannot afford such a large scale and must take the initiative. Primary industries should be given lower tariff rates for raw materials. A number of tax incentives may also be granted, such as: accelerated depreciation, very low or zero import taxes on capital goods, and exemption from corporate taxes for a certain period of time.

The taxation policy in special economic zones is better than in other parts of the country. Foreign investors in other areas of the country outside of special economic zones may experience lower government effectiveness and greater losses. But the possibility of "social pollution" such as prostitution, pornography, drugs, gambling and crime in the special economic zones may be of concern to developing countries. Some progressives criticize the possibilities of an open-door policy. Because when the windows are opened, some flies and mosquitoes can fly in with the fresh air and they can be eliminated with the help of social stability, harmony and unity and harmony of the people of the country.

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**CHARACTERISTICS OF PERSONALIZED EDUCATIONAL TECHNOLOGIES
IN ENSURING EDUCATIONAL QUALITY**

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Associate Professor of the International Islamic
Academy of Uzbekistan, Doctor of Philosophy in Pedagogical Sciences (PhD)**Abstract**

The article describes the role and importance of personal educational technologies in improving the quality of education in a general education school, as well as the need for school graduates to choose life goals and principles.

Keywords: school, quality of education, educational technology, person-oriented technologies, pedagogical technology, pedagogical activity, education, student, teacher.

Introduction

In all times and places, the educational system has served to meet certain social, economic, cultural and scientific-technical needs. After all, such needs are, first of all, the basis for setting educational goals; secondly, it encourages the creation of conditions necessary for the implementation of educational goals and their improvement. In the development of the educational system, socio-economic factors are the primary basis. It is the socio-economic structure of the society that allows creating the necessary conditions for the formation and development of the educational system in cooperation with many other factors. Scientific and technical progress, the existing cultural and socio-ideological environment stimulate the implementation of socio-economic changes in society or hinder the development of the existing system, including the education system.

The most important issue for the educational system is to help solve the problems that have arisen in the socio-economic and cultural spheres of the society.

It is important for general education schools to be able to quickly respond to the social demands imposed by the society, to quickly adapt to the new situation that has arisen, and at the same time, to preserve the accumulated best practices. Studies show that general education schools have a somewhat conservative nature, and most of the teachers working in them are very slow to adapt to the ongoing socio-economic changes and scientific and technical progress. In many situations, the news is not received positively. It takes some time for good practices and innovations to be positively accepted by teachers and students. However, in the conditions of global information, the adoption of innovative pedagogical technologies and their effective use in the educational process should not cause objections. If in the periods when traditional education was a priority, teaching took a leading place in the education system, in the current conditions, independent study is an important aspect of



the system. Therefore, now it is appropriate to adopt the principle of "teacher-textbook-student" in the form of "student-textbook-teacher". According to this principle, the main task of the teacher is to organize independent learning activities of students in accordance with specific educational goals, to teach them to acquire independent knowledge and actively apply the acquired theoretical knowledge in practice. . Now the teacher's main focus is not on transferring ready-made knowledge to students, but on the contrary, on their independent assimilation of knowledge using various sources, forming in them the ability to think independently, to be able to prove their personal points of view, to use previously acquired knowledge in new ways. It is necessary to focus on choosing effective methods that allow enrichment with information.

It is known that at the beginning of the 20th century, educational activities were structured in such a way that the student studied a certain set of subjects every day (for example, one hour of mathematics, one hour of physics, one hour of literature, music, etc.). it was required to be the main participant in the process. At the end of the lessons, homework was assigned on these subjects. The student had a hard time connecting the knowledge he acquired on the listed subjects, he felt difficulties in understanding the reflection of the interrelationship between the subjects in the system.

The famous Russian pedagogue B.S. Gershunsky predicts educational and pedagogical principles that will gain priority in the educational system in the 21st century, and draws attention to the need to reorient it in researching ways to increase the effectiveness of the pedagogical process. It is desirable to achieve the following:

- instead of executive, result-oriented activity of the student, achieving the organization of creative, searching activity at all stages of the educational process;
- transition from ensuring unity of goals, content, methods, means and organizational forms of strict management, education, upbringing and development to individualization and differentiation of educational and cognitive activities of learners:
- from subordinating all elements of the educational process to a single idea, ideological pluralism, ensuring the freedom of learners in choosing life goals and principles;
- from the mutual compatibility of the system of technocratic and humanistic trends and priority principles, to achieve harmony with the natural development of the mutual activities of pedagogues and students in the field of education and learning.

Therefore, in the perspective directions of the development of the educational system in modern society, the following can be seen: ensuring the intellectual and moral development of a person on the basis of diverse, independent and purposeful activities in various fields of knowledge. In developed countries - the USA, Great Britain, France, Germany, Canada, etc., the above-mentioned direction is considered the main one in the implementation of educational reforms. Accordingly, the following three important tasks are defined:

- 1) reform the education system;
- 2) recognition of students' ability to conduct independent activities, activities and thinking as the leading principles of education and training;
- 3) integration of advanced information technologies and technical tools in the educational process.



Until recently, it was considered impossible to positively solve the above-mentioned tasks according to the traditional approach in the current conditions, that is, when the class-lesson system was widely used to transfer knowledge to students. According to the requirements of the Law of the Republic of Uzbekistan "On Education", the situation has completely changed. During the past years after the independence of the republic, sufficient conditions were created to solve the leading tasks of educational reforms and they were solved positively. So, what were the necessary conditions created in this way? They are:

1) taking into account the opportunity of every learner to actively participate in the learning process;

2) the possibilities of mutual cooperation between the pedagogue and students were studied. The solution to this current pedagogical problem should be effective and consistent, and at the same time, it should be done in a short period of time. Therefore, it is necessary to take into account the nature of communication between the main elements of the educational system, organizational parts, to find an important link in the creation of a whole chain, that is, to achieve the goal of education in the new social and economic conditions. is appropriate. In our opinion, an important link in the whole chain of the educational system is the use of advanced pedagogical and information technologies in the teaching process. They cannot be separated from each other. After all, the wide application of advanced pedagogical technologies in the educational process leads to the change of educational paradigms. And only new information technologies make it possible to effectively use the possibilities of advanced pedagogical technologies.

The famous Russian pedagogue-scientist B.S. Gershunsky, defining the priority features that are supposed to be characteristic of the 21st century, emphasizes that the following should be paid attention to when determining ways to increase the effectiveness of the pedagogical process:

1) the predominance of elements of creative research in the activity of learners at all stages of the educational process;

2) individualization and differentiation of educational activities of learners, denying the strict homogenization of education, training and development goals, content, methods and organizational forms;

3) deciding to achieve diversity of opinions, understanding of social existence, mutual trust, spiritual formation and free choice of ways of development, ending subordination of all components of the educational process to a single idea;

4) to ensure mutual unity of educational and learning activities of pedagogues and students naturally, eliminating the unbalanced system of technocratic and humanitarian directions.

From the opinions expressed, it is understood that the strategic direction of the development of the education system in any society in modern conditions is to develop the individual intellectually and spiritually and morally by forming the skills and qualifications of independent acquisition of knowledge in various fields. In this direction, solving the following three main tasks in the development of education is recognized as urgent:

1) reconstruction of the educational system;



2) achieving independent activity and free thinking of learners as the most priority principles in the educational process;

3) effective use of advanced information technologies in the educational process.

In the years of independence, the necessary conditions were created for the reconstruction of the education system and the effective use of advanced information technologies in the educational process. That is, it is denied that every student is a slow learner of knowledge, he should take measures to get independent education, actively apply the acquired knowledge in practice, as well as achieve success in the activities he organizes. emphasis is placed on having the opportunity to think independently. Also, students should be encouraged to work cooperatively, to develop their communication skills, to exchange opinions on a certain problem with young people not only from the region where they live, but also from other countries, to put forward their personal opinions on the issue being resolved, it is necessary to create conditions for them to be able to use the information available in information technologies for this purpose, to achieve reasonable statements based on evidence.

Educational activity, as one of the main types of social activity of a person, is carried out at the expense of the intellectual, emotional and physical effort typical of the processes of perception of material existence and organization of social relations. As a result of regularly organized classes, conscious activity processes are coordinated and important psychological characteristics, general abilities, independence, social activity, responsibility and other important qualities of students are developed. The new needs that arise in students ensure the variability of educational activities, and the satisfaction of needs is an important factor in revealing individual creative potential.

The use of the modeling method on the basis of pedagogical activity activates the professional orientation of students, helps to equip them with theoretical and practical knowledge. With the help of this method, students' pedagogical speech is improved, the ability to exert pedagogical influence is developed, and the ability to deeply analyze, observe and evaluate existing situations increases.

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