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ЛИНГВО-КУЛЬТУРОЛОГИЧЕСКИЕ ИССЛЕДОВАНИЯ КОНЦЕПТА «ЧЕЛОВЕК»
НА РУССКОМ И УЗБЕКСКОМ ЯЗЫКАХ

Рамазанова Назира Тулкуновна

Аннотация: В данной работе приведены данные и обзор исследований, посвященных вопросу воплощения концепта «человек» в узбекском и русском языках. Проанализировано, что крупномасштабные исследования данного концепта в русском языке были изучены в 2000-х годах XXI столетия, а в узбекском языке данный концепт еще не был изучен в рамках крупномасштабных исследований, а исследовались только на магистерских работах.

Ключевые слова: концепт, человек, лингвокультурология, русский язык, узбекский язык, репрезентация.

Современный период развития языкознания совпадает с развитием лингвокультурологии, в рамках которой изучаются вопросы взаимодействия языка, культуры и человека. Она возникла на «стыке лингвистики и культурологии и исследует культуру этноса, отраженную и закрепленную в языке» [6, с. 28]. Основным понятием лингвокультурологической науки, несомненно, является понятие «концепт», представляющий собой продукт когнитивного сознания.

Как утверждает В. И. Карасик, ядром концепта должна выступать ценность, поскольку концепт служит средством при исследовании культуры того или иного народа [4, с. 14]. С этой точки зрения изучение концепта «человек», представляющего собой одну из основных ценностей культуры народа представляет собой особую актуальность.

Важно отметить, что человек представляет собой единицу общества и нации при любой общественно-экономической формации и политическом устройстве общества. Значение человека только этим не ограничивается. Духовные ценности также создаются в процессе трудовой деятельности человека. Он также выступает как один из факторов общественного развития общества. В конечном итоге, благодаря деятельности «человека» формируются социальные слои общества и основа их взаимодействия.

Человек — это общественное существо, обладающее разумом и сознанием, субъект общественно-исторической деятельности и культуры. Целенаправленная общественно полезная деятельность человека, в первую очередь это изменение природных объектов и приспособление их к потребностям. Человек является основным условием существования человеческого общества, поскольку он создает материальное и духовное благо, необходимое для существования общества.

Исследованию концепта «человек» в русском языке посвящено множество крупномасштабных исследований. Рассмотрим некоторые из них.

Аналізу рассматриваемого концепта в русском языке на материале пословиц и поговорок посвящена диссертации многих лингвистов [1]. В данных работах концепт описывается как ментально-когнитивное образование, на материале лексикографических источников исследуется вопрос о репрезентации концепта «человек» в русском языке, изучается также проблема его манифестации в русских пословицах и поговорах.

Рассмотрению концепта «человек» в паремиологии неродственных языков посвящена диссертация Р. Х. Каримовой [5]. В ней указанный концепт исследуется на примере немецкого, английского, русского, башкирского и татарского языков. Пословицы описываются в качестве объекта исследования в современной лингвистике, изучаются

когнитивные аспекты исследования фразеологии, а также вопрос о репрезентации концепта «человек» в паремиологии неродственных языков.

В следующих работах [8] концепт «человек» изучается на примере немецких и русских паремий. В качестве материала выступают современные публицистические тексты сельской тематики. Основное внимание автор уделяет анализу семантических полей ядерных лексем, отражающих концепт «человек» в немецком и русском языках языкознании, а также паремий немецкого и русского языков в современных публицистических текстах сельской тематики, содержащих рассматриваемый концепт.

Теоретические проблемы вербализации концепта «человек» в русском языке рассматриваются в работе Г. В. Токарева [10]. В ней автор изучает лингвокультурологические аспекты концептуализации и категоризации человеческой деятельности, проблему вербализации стереотипных представлений, процессов осмысления деятельности человека семантикой ключевых слов, а также связи концепта «человек» в русской идиосфере.

О. Е. Чернова в своей работе [11] описывает концепт «человек» как объект идеологизации. В исследовании автор на материале словарей рассматривает вопрос о семантическом ядре концепта «человек» в русском языке, изучает отражение его содержательной специфики в текстах газеты «Магнитогорский рабочий». Практический раздел работы состоит из двух частей. В первом рассматриваются витки идеологизации концепта «человек», во втором — идеологическая редукция и деидеологизация концепта в газете «Магнитогорский рабочий».

Исследование Т. В. Гонновой [2] посвящено изучению социокультурных характеристик концепта «человек» в русском языковом сознании. В ней автор детально останавливается на социолингвокультурной трактовке понятия «концепт». В работе изучаются системные, современные ассоциативные характеристики данного социолингвокультурного концепта.

Работа Т. А. Островской [7] посвящена сопоставительному изучению концепта «человек» в русской и американской лингвокультурах. В работе культурный концепт описывается как базовое понятие когнитивной лингвистики, культурный концепт «человек» рассматривается как отражение концептосферы народа, изучается вербализация лингвокультурологических характеристик отношения к человеку в русском языке и американском варианте английского языка.

К. А. Жуков в своем диссертационном исследовании [3] изучает вопрос о языковом воплощении концепта «человек» в пословичной картине мира. В качестве материала выбраны паремические единицы русского и английского языков. В работе основное внимание уделено проблеме концептуализации мира и проявлению менталитета языковой личности в паремиях русского и английского языков, воплотивших концепт.

В рассматриваемом нами аспекте не менее интересна диссертационная работа С. В. Суслович [9]. В ней автор приводит теоретические аспекты исследования концепта человек в диахроническом аспекте, останавливается на синхронном аспекте изменения содержательной стороны данного концепта.

Таким образом, вопрос о репрезентации концепта «человек» на материале русского языка, а также в компаративном аспекте, при котором русский язык выступает в качестве одного из сопоставляемых языков, активно исследовался в 2004–2011 годах.

Следует отметить, что большинство диссертационных работ было выполнено в 2004 году. Указанный период, несомненно, можно назвать периодом расцвета лингвокультурологических исследований, посвященных изучению рассматриваемого нами концепта. Следует отметить, что к настоящему времени концепт «человек» в узбекском языкознании не стал еще предметом исследования. Существуют лишь магистерские диссертации, выпускные квалификационные (дипломные работы, посвященные раскрытию сущности воплощения данного концепта в узбекском языке. В частности, в 2022 году написана магистерская диссертация «Паремические единицы с концептом «человек» в русском и узбекском языках». Отсюда следует, что изучение репрезентации концепта «человек» в русском и узбекском языках может стать отдельной темой для диссертационного исследования на соискание ученой степени доктора философии (PhD) по филологическим наукам, чему будут посвящаться наши последующие изыскания.

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Ancient gates of Bukhara.

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Annotatsiya: This article contains information about the historical gates of the city of Bukhara. The locations and names of the ancient gates are explained.

Keywords: Gates of Bukhara, Registan, Allafurishan, Haqroh (Khurfa), Attoron, Nav, Kuhandiz, Muhra, Bani Sad.

The city of Bukhara is one of the oldest cities of our country, the city was built on the basis of the traditions of medieval urbanism. In the early Middle Ages, there were 2 gates in the city arch: the Western gate was called Registan, Allafurishan or Somonfuusan, and the Eastern gate was called Gorayon.

There were 7 gates on 4 sides of Shahrsto

- Haqroh (Khurfa) in the north

- Attoron (Babylon Medina) Ohaniyan

(Blacksmiths) in the south

- Light in the East

- there were Kuhandiz, Muhra (Bani Asad)

and Bani Sad gates in the west.

In the past 23 years after the independence of Uzbekistan, in all aspects of the economic and social life of our country, including our region, including preserving the historical monuments inherited from our ancestors, renovating them and presenting them to future generations. For centuries, great works have been done in terms of delivery.

In particular, as part of the preparations for the 2500th anniversary of Bukhara and its implementation based on the decision of President I. Karimov, Kalon architectural complex, Mir-Arab, Ulugbek madrasas, Ark fortress, Samonii mausoleum, Labihovuz complex and many other monuments were restored. The shrines of Abdulkhaliq Gijduvani, Bahauddin Naqshband, Sayyid Mir Kulol and other Sufi scholars were rebuilt, and the architectural complex of Chorbakr, which had fallen into disrepair due to centuries of neglect, was rebuilt.

The ancient fortress surrounding Bukharai Sharif and its gates have been an integral part of the urban planning and architecture of this ancient land for centuries. However, during the invasion of Bukhara by the Red Army in the fall of 1920, the city's fortress and gates were fired from cannons and bombarded, national values and traditions were completely ignored in socialist urban development, and the state did not pay attention to the maintenance of the monuments of our country. Due to the insufficient amount of funds allocated from the budget, only a few tens of meters of the 12-kilometer-long fortress and only 2 of the ancient gates are left, which may lead to the disappearance of the unique architectural image of this old land. Taking this into account, regional governor S. Husenov initiated a good project to rebuild a part of the ancient fortress and the city gates with the support of a group of dignified patrons, talented architects and repairmen. .



The materials published on page 3 of our newspaper are devoted to the results of scientific and creative research and hard work carried out in this direction.



Bukhara fortress walls and gates

A group of repair masters led by the laureate of the State Prize of the Republic of Uzbekistan Olim Abdiyev (in the photo) rebuilt this magnificent monument in 2009 on the basis of the project of architect Mahmud Akhmedov on the foundation of the Samarkand Gate, which was built in the 16th century by the ruler of Bukhara Abdulaziz Khan on the banks of the Great Silk Road. made it.

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**DEMYSTIFYING PHARMACEUTICAL TERMINOLOGY: UNDERSTANDING
MEDICINAL FORMS AND FREQUENTLY USED SEGMENTS**

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Abstract. Pharmaceutical terminology is the linchpin of healthcare and the pharmaceutical industry. This article explores important components, inclusive of medicinal paperwork and common segments in drug names (FS), influencing drug management and launch mechanisms. Familiarity with those paperwork is important for unique remedy.

In end, pharmaceutical terminology is the linchpin of healthcare, ensuring effective verbal exchange from drug development to patient care. Proficiency in medicinal forms, commonplace segments, and nuances is essential for patient protection and pharmaceutical development, permitting healthcare experts to navigate the arena of medicines with self assurance and precision.

Key Words: Pharmaceutical terminology, Drug presentation, Drug presentation, Medication accuracy, Antifungal medicinal drugs, Monoclonal antibodies.

INTRODUCTION

Pharmaceutical terminology is an crucial component of the healthcare and pharmaceutical industries. It bureaucracy the muse for effective verbal exchange amongst healthcare experts, researchers, pharmacists, and the public. One essential component of pharmaceutical terminology is understanding the diverse medicinal forms in which tablets are provided and regularly used segments (FS) inside these phrases. In this article, we will delve into the shape of pharmaceutical terms and the significance of vocabulary on this subject.

The article also delves into FS, revealing insights into a drug's composition or reason. Notable examples encompass "1-cillin" for penicillin antibiotics and "3-azole" for antifungal drugs.

Pharmaceutical terms, together with prevalent and emblem names, carry vital drug statistics. Generic names outline a drug's composition, while emblem names are logo-precise. Recognizing not unusual segments in drug names complements understanding of a drug's function.

A complete pharmaceutical vocabulary guarantees specific healthcare communication. Healthcare experts can describe situations correctly, prescribe tailored medicines, communicate ability side outcomes, and enhance affected person adherence. Understanding terms like "acute" and "continual" informs custom designed remedy.

MAIN BODY

MEDICINAL FORMS

Medicinal bureaucracy seek advice from the physical presentation of medicine or pharmaceutical preparations. These paperwork dictate how a drug is administered and its release within the body. Common medicinal forms encompass pills, tablets, syrups, injections, lotions, and greater. Understanding those paperwork is vital for healthcare professionals to prescribe, dispense, and administer medicines accurately.

FREQUENTLY USED SEGMENTS (FS)

Within pharmaceutical terminology, positive segments are used frequently to describe various factors of a drug. These segments regularly seem as prefixes or suffixes in drug names and convey specific records about the drug's composition, motion, or usage. Some not unusual regularly used segments include:

1-cillin: This phase shows a drug is a type of penicillin antibiotic, typically used to treat bacterial infections. Examples encompass ampicillin and penicillin.

2-pril: Often used for capsules referred to as ACE inhibitors, which can be used to deal with excessive blood stress and coronary heart situations. Examples include enalapril and lisinopril.

3-azole: This section denotes antifungal medicinal drugs, such as fluconazole and ketoconazole, used to treat fungal infections.

4-statin: Frequently seen in ldl cholesterol-lowering tablets like atorvastatin and simvastatin, those medications help manage lipid ranges in the blood.

5-mab: Used for monoclonal antibodies, regularly hired in most cancers treatment. Examples consist of infliximab and rituximab.

STRUCTURE OF PHARMACEUTICAL TERMS

Pharmaceutical phrases are carefully built to provide specific data approximately a drug. The shape usually includes the drug's usual call and, if relevant, its emblem name. The widely wide-spread name is common and refers back to the drug's chemical composition, while the logo call is unique to a selected producer's product.

The shape may also contain regularly used segments, which deliver additional facts approximately the drug. For instance, "amoxicillin" consists of the customary call "amoxi-" and the frequently used segment "-cillin," indicating that it's far a penicillin antibiotic

VOCABULARY IN PHARMACEUTICAL TERMINOLOGY

A rich and nuanced vocabulary is essential in pharmaceutical terminology. Precise and steady terminology guarantees safety, accuracy, and powerful communication within the healthcare industry. For instance, "acute" and "continual" are terms used to distinguish among short-term and long-time period clinical situations, each requiring specific remedy approaches.

Furthermore, having a complete pharmaceutical vocabulary lets in healthcare experts to:

- Accurately describe the nature of a disorder or situation.
- Prescribe the most appropriate medicine based totally on a patient's needs.
- Communicate capacity aspect consequences or interactions.
- Ensure affected person compliance with remedy instructions.

CONCLUSION

Pharmaceutical terminology plays a vital role in the healthcare ecosystem, from drug development to patient care. Understanding medicinal forms, frequently used segments, the structure of pharmaceutical terms, and the nuances of pharmaceutical vocabulary is crucial for effective communication, patient safety, and the advancement of the pharmaceutical field. By mastering these elements, healthcare professionals can navigate the complex world of medications with confidence and precision.

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MAKTABGACHA YOSHDAGI BOLALARNING MUSIQIY FAOLIYATI

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Annotatsiya: *Ushbu maqolada maktabgacha ta'lim tashkilotlarida bolalarga qaratilgan musiqiy faoliyat haqida fikr yuritilgan. Bolalarda musiqiy asarning ifoda vositalari va shaklini tahlil qilish malakasini shakllantirish ularda o'z fikrlarini bemalol bayon qilish ko'nikmalarini shakllantirdi.*

Tayanch so'zlar: *musiqa, davr, bola, ashula, qo'shiq, ta'lim, taebiya, mashg'ulot, faoliyat, san'at.*

МУЗЫКАЛЬНАЯ ДЕЯТЕЛЬНОСТЬ ДОШКОЛЬНИКОВ

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АННОТАЦИЯ: *В данной статье рассматривается музыкальная деятельность, направленная на детей в дошкольных образовательных учреждениях. Формирование у детей умений анализировать средства выразительности и форму музыкального произведения сформировало у них умения свободно выражать свои мысли.*

Ключевые слова: *музыка, период, ребенок, песня, песня, образование, урок, тренировка, занятие, искусство.*

MUSICAL ACTIVITY OF PRESCHOOL CHILDREN

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Abstract: This article discusses musical activities aimed at children in preschool educational institutions. Forming in children the ability to analyze means of expression and the form of a musical work has formed their ability to freely express their thoughts.

Key words: music, period, child, song, education, lesson, training, activity, art.

Ulug' ajdodlarimiz o'z asarlarida barkamol shaxs tarbiyasi va inson aql-zakovati shakllanishida musiqa ilmining o'rni muhim ekanligini aytib o'tishgan. Bu sohaning o'ziga xos «sho'ba»lari ichida musiqa madaniyati tarbiyasi san'atining ilmiy va tarbiyaviy ahamiyati yuqori baholangan. Shu bois ham ilm-fan, madaniyat va san'at sohasida jahonshumul e'tirof qozongan allomalar (Abu Nasr Forobiy, Abdulqodir Marog'iy, Al Kindiy, Abdurahmon Jomiy, Ibn Sino, Darvesh Ali Changiy, Alisher Navoiy) musiqaga ham ilm sohasi, ham san'at, ham tarbiya vositasi sifatida alohida ehtirom bilan qarashgan, uning turli muammolariga oid yirik asarlar, risolalar yaratgan. Bu asarlar musiqiy-nazariy bilimlarning tarixiy negizi sifatida bugungi kunda ham o'z ilmiy, tarbiyaviy nufuzini yo'qotgan emas.¹ Biroq har qanday sohada bo'lgani kabi musiqiy ta'limda ham shaxsni shakllantirishning zamonaviy talablari mavjud bo'lib, u har bir ijtimoiy davrning ta'limga buyurtmasi, ehtiyoji sifatida kun tartibiga chiqadi.

¹ Nurullayev F.G. Bolalarning musiqiy ta'limi . Darslik. B.:Kamolot. 2022.

Maktabgacha ta'lim muassasalari tarbiyalanuvchisi shaxsini shakllantirishda qo'shiqlar o'rgatish texnologiyasining o'rni muhim.

Musiqqa mashg'ulotlarida qo'shiq kuylash bolalarga ijobiy ta'sir etibgina qolmay, ularning musiqiy didi va musiqiy dunyoqarashi shakllanishiga ham samarali ta'sir qiladi. Shu bois maqbul mazmun va metodikada berilgan musiqiy bilimlar majmuasi bolalarda musiqaga barqaror qiziqishni tarbiyalaydi, muhimi, ular musiqani: janrlarni, xalq musiqasi va mumtoz musiqani ajratishga o'rganadilar.

Tadqiqot natijalari bolalarning qiziqish bilan qo'shiq kuylab, musiqqa tinglab, kompozitorlar hayoti bilan tanisha boshlaganliklarini ko'rsatdi. Hatto avvaliga musiqqa madaniyati mashg'ulotlariga e'tiborsizlik bilan qaragan bolalar ham oxir-oqibatda musiqqa mashg'ulotlariga ko'tarinki ruhda, biror-bir yangilikdan xabardor bo'lish niyatida kela boshladilar.

Bolalarda musiqqa mashg'uloti tarkibidagi turli xil faoliyatlarga bo'lgan qiziqish va intilish kuchaydi. Ko'pchilik bolalarda musiqqa tinglash, qo'shiq kuylash, ritmik harakatlar bajarish jarayonlariga savodli, ya'ni ongli ravishda yondashish malakalari shakllandi.

Bolalarda musiqiy asarning ifoda vositalari va shaklini tahlil qilish malakasini shakllantirish ularda o'z fikrlarini bemalol bayon qilish ko'nikmalarini shakllantirdi.

Musiqqa mashg'ulotida yangi pedagogik texnologiyalarni qo'llash bolalarning musiqiy bilimlarga, jumladan, musiqqa savodiga qiziqishlarini kuchaytirdi. Bolalar endilikda musiqiy boshqotirmalarni bemalol yechadigan, notalarni yaxshi biladigan, tovush va uning xususiyatlarini anglaydigan, musiqqa ifoda vositalari haqida aniq tushunchalarga ega bo'ldilar.

Tajribalar mashg'ulotlarning samaradorligi ularning to'g'ri uyushtirilishiga bog'liq ekanligini ko'rsatdi. Musiqqa «til»i hamma va barchaga tushunarli hamda yaqin. Shuning uchun u insonlarning ruhiyatini ko'tarish, quvonch va rohat baxsh etish bilan birga, o'sib kelayotgan yosh avlodni shaxs sifatida shakllantirishda benazir yordamchidir.

Bolalar tarbiyasida qo'shiq kuylash faoliyati yetakchi o'rin egallaydi. Bu faoliyat turi bolalarga boshqa faoliyat turlariga nisbatan yaqin va tushunarlidir. Bolalar qo'shiq kuylashni sevadilar. Kuylash bolalar ijrochiligi faoliyati ichida yetakchi faoliyat turi bo'lib, u bolalarning musiqiy-estetik tarbiyasida muhim o'rin egallaydi. Yaxshi qo'shiq bolani quvontiradi, har tomonlama kamol toptiradi va tarbiyalaydi.² Cholg'u kuylaridan farqli o'laroq qo'shiq kuylash kuchli emotsional ta'sir kuchiga ega. Chunki qo'shiqda matn va musiqqa badiiy birligi namoyon bo'ladi. Qo'shiq kuylash bola shaxsi tarbiyasiga har tomonlama ta'sir ko'rsatadi. Qo'shiq inson aqliy kamolotining o'sishiga, dunyoqarashining kengayishiga, atrof-olam haqidagi tasavvurlarining boyishiga xizmat qiladi.

Qo'shiq kuylash jarayonida ular musiqani chuqurroq idrok etadilar, o'z kechinma va his-tuyg'ularini faolroq ifodalaydilar. Qo'shiqning matni bolalarga musiqqa mazmunini tushunishga va kuyni osonroq o'zlashtirishga yordam beradi. Biror-bir cholg'uda ijro etilgan kuyga nisbatan ovozda ijro etilgan kuyni bolalar yaxshiroq idrok etadilar.

² Nurullayeva N.K. Nurullayev F.G "Maktabgacha yoshdagi bolalarga musiqiy-estetik tarbiya berishda ilg'or pedagogik texnologiyalarning o'rni". Monografiya. Buxoro "Kamolot" nashriyoti 2022-yil. 90 bet.

Qo'shiq kuylash jarayonida bolalarda musiqiy qobiliyat rivojlanadi: musiqiy eshitish qobiliyati, musiqiy xotira, ritm hissi, shuningdek, qo'shiq kuylash musiqiy qobiliyatlaridan: metr va ritm hissi, musiqiy eshituv, lad hissi rivojlanadi.

Jamoa bo'lib kuylash faoliyati o'quvchilarning musiqiy o'quv qobiliyati hamda ijrochilik malakalarini rivojlantirish uchun zarurdir. Guruhda jamoa bo'lib kuylash jarayonida o'quvchi o'z ovoz ijrosini boshqarishni, ustozlari ijrosini eshitib kuzatishni hamda ular bilan bahamjihat jo'rnovozlikda kuylashni o'rganadi, ularda jamoaviy birlik, uyushqoqlik, o'zaro do'stlik hislari tarbiyalanadi.

Qo'shiqlarni o'rganish bolalarda nafaqat musiqiy savodxonlikni, balki musiqiy dunyoqarash, musiqiy did, musiqiy tafakkur va shu kabi sifatlarni shakllantirishga xizmat qilishi amalda o'z isbotini topgan.

Bolalar maktabgacha ta'lim muassasasiga kelgan ilk kunlaridanoq ularning san'atga, ayniqsa, musiqaga intilishi va qiziqishi yuqori bo'ladi. Shuning uchun musiqa mashg'ulotlarida bolalarning shaxs sifatida shakllanishiga alohida e'tibor qaratish lozim. Bu rahbarning mutaxassis, o'z sohasining ustasi sifatida bilimdonligi va ijodiy barkamolligiga bog'liqdir.

Qo'shiq kuylash bolalarga ko'tarinki kayfiyat bag'ishlaydi. U bolalarni nafaqat ruhiy, balki jismoniy jihatdan rivojlantiradi. Chunki bola kuylayotganda og'iz, burun, nafas yo'llari, ko'krak qafasi, umuman olganda, barcha a'zolari ishtirok etadi. Bola kuylash jarayonida erkin va to'g'ri o'tirishi talab etiladi. Maktabgacha yoshdagi bolalarda qo'shiqchilik ko'nikmalarini tarbiyalash yordamida kuylash jarayonida nafas yo'llari ham rivojlanadi.

Bolalarning kuylashi jarayonida matn va musiqa uyg'unligi bilan birga matn va kuyga ham e'tibor beriladi. Qo'shiqda matn va musiqiy kuy birikib, tinglovchiga emotsional ta'sir ko'rsatib, turli his-tuyg'ularni uyg'otadi. Bu ta'sirchanlik bola tarbiyasida katta ahamiyatga ega.

Bola go'daklik davridan qo'shiqning ma'nosi va mazmunini tushunmasa-da, unga o'z hissiy munosabatini bildiradi. Bola rivojlangani sari, nutqi va hayot davomida olgan ko'nikmalari qo'shiqni, umuman, kuyni tushuna olishiga yordam beradi.

Qo'shiq kuylash bola ruhiyatiga ta'sir qilish barobarida, uning jismoniy o'sishi va rivojlanishida ham katta ta'sir ko'rsatuvchi omildir. Jamoa bo'lib kuylash mashg'ulotlarida o'quvchilarning diqqat-e'tibori, ongilligi va faolligi oshadi, musiqiy xotira yaxshi rivojlanadi va o'rgangan qo'shiqlarni ijro etganda, zavqlanish hissi paydo bo'ladi. Qo'shiqning so'z ma'nosini va musiqa ohangini chuqur idrok etadi va asar mazmuni orqali hayotni o'rganadi.

Qo'shiq kuylash bolalarning nutqi rivojlanishiga ham zamin yaratadi. Qo'shiq so'zlari cho'zib ijro etilganligi tufayli bolalar yangi so'zlarni bo'g'inlab, xatosiz o'rganadilar. Musiqiy rahbar va tarbiyachilar so'zlarning to'g'ri ijro etilishini tekshirib boradilar.

Qo'shiq kuylash jarayoni bolalarni umumiy kayfiyat bilan birlashtiradi, ular hamkorlikda faoliyat yuritishga o'rganadilar. Ular shoshib ketayotgan yoki orqada qolib ketayotgan o'rtoqlarini eshitadilar va ularni bir xil sur'atda kuylashga chaqiradilar.

Qo'shiq kuylash – musiqiy tarbiyaning asosiy vositasi. U boshqa faoliyatlarga nisbatan bolalar uchun juda yaqindir. Qo'shiq kuylab, ular musiqani yanada faolroq idrok etadilar. Qo'shiq matni esa mazmunan qo'shiq kuyini anglashga yordam beradi.

Kuylash faoliyatida bolalarda musiqiy qobiliyatlar: eshitish, xotira va ritm hissi rivojlanadi. Kuylash bolaning nutqini rivojlantiradi.

Jamoa bo'lib kuylaganda bolaga kuy qo'shiq matniga nisbatan kuchliroq ta'sir qiladi. K.D.Ushinskiy ta'kidlaganidek: "Qo'shiqda, ayniqsa, xor jamoasida qalbni tarbiyalovchi, uni jumbushga keltiruvchi hissiyotlar mavjud".

Ko'p hollarda o'g'il bolaning shaxdam yurib marshni kuylayotganini, qiz bolaning esa qo'g'irchoqni allalashini kuzatishimiz mumkin.

Bolaning ovozi — tabiiy cholg'u, chunki bu cholg'u unda yoshligidan mavjud. Shuning uchun ham uning hayoti davomida hamroh bo'ladi va turli o'yinlarda foydalanadi. Undan tashqari qo'shiq bola hayotining boshqa faoliyatlarida ham qo'llanadi. Masalan, raqs, xorovod, bolalar cholg'ularida ijro etilganda.

Qo'shiq — bu bolaning dunyoqarashini kengaytirib, yorqin obrazli tasavvurga ega bo'lishga yordam beradi. Qo'shiqlarda tabiatga, Vatanga muhabbat, kattalarga, ajdodlarga hurmat o'zaro munosabatlarni yaxshilash va boshqa tarbiyaviy axloqlarni o'stirishga yordam beradi.

Qo'shiq o'rgatish jarayonida bolalardan katta aqliy mehnat talab etiladi. Unga yonidagi bolani eshitish, uning qo'shig'iga o'z munosabatini bildirish, musiqiy jummalarni bir-biri bilan taqqoslash, fortepiano jo'rligini tinglay olish, qo'shiqning garmonik va melodik tizimini eshita olish va ijro sifatini baholash kabi bilimlar o'rgatiladi.

Qo'shiq bola organizmiga ham o'z ta'sirini ko'rsatadi. Masalan, nutqini o'stiradi, ovoz apparatlarini rivojlantiradi, qo'shiqchilik nafasini shakllantiradi. Bolada qo'shiq kuylash jarayonida, asosan, musiqiy hissiyot, emotsional ta'sir, musiqiy eshituv (slux), ritm hissi kabilar rivojlanadi.

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Problems and prospects of the development of cashless payments: the role of the banking system and the state

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Abstract: Cashless payments have become increasingly popular in recent years, with many countries adopting digital payment systems to improve efficiency and reduce the need for physical cash. However, the transition to cashless payments also creates a number of problems and disadvantages that need to be addressed. In this article, we study the problems and prospects of the development of cashless payments, focusing on the role of the banking system and the state.

Keywords: Digital Transactions, Fraud, Cashless Payment Systems, Digital Divide, Cryptocurrencies, Infrastructure & Technology, Debit Cards, Credit Cards, Prohibitory Laws.

Problems with cashless payments:

The challenges associated with cashless payments can be broken down into various aspects, including security issues, technological limitations, and accessibility issues. While cashless payments offer convenience and efficiency, they come with unique challenges that must be addressed for widespread adoption and use. In this comprehensive answer, we will look at each of these issues in detail.

1. Security issues: One of the main problems with cashless payments is the issue of security. As digital transactions become more common, the risk of fraud, identity theft, and unauthorized access to sensitive information increases. Cybercriminals use a variety of methods to exploit vulnerabilities in payment systems, including hacking, phishing, and malware attacks.

a) **Fraudulent activities:** Cashless payments, criminals are prone to fraudulent activities such as obtaining card details using illegal devices. In addition, online transactions can be compromised through data breaches or unauthorized access to payment gateways.

b) **Identity theft:** With the proliferation of digital payment methods, personal information such as credit card details and bank account numbers are stored electronically. If this information falls into the wrong hands, it can lead to identity theft and financial loss.

c) **Data Breach:** Organizations that store customer payment information are potential targets for hackers seeking unauthorized access to valuable information. Data breaches can cause significant financial losses for businesses and individuals.

d) **Lack of consumer awareness:** Many users may not be fully aware of the security measures they need to take while making cashless payments. This lack of awareness can make them more vulnerable to fraud and fraudulent activities.

2. Technological limitations: Cashless payment systems rely heavily on technological infrastructure and connectivity. However, there are a number of technological limitations that prevent the continuous operation of these systems.

a) **Connectivity issues:** Cashless transactions can be difficult in areas with limited or unreliable internet connectivity. This is especially problematic in rural or remote areas where stable internet access is limited.

b) **System Downtime:** Cashless payment systems, including online banking and mobile payment applications, are subject to system failures and downtime. Technical failures, maintenance activities or cyber-attacks may disrupt the availability of these services and cause inconvenience to users.

c) Compatibility and interoperability: Different payment systems may have different levels of compatibility and interoperability. This can make it difficult to transfer funds between different platforms or use cashless payment methods for international transactions.

d) Complexity for elderly users: Some elderly people may find it difficult to adapt to new technologies and navigate complex cashless payment systems. This can lead to a lack of inclusivity and accessibility for certain demographics.

3. Usability Issues: While cashless payments provide convenience, convenience remains a significant challenge for certain segments of the population.

a) Digital divide: The digital divide refers to the gap between those who have access to technology and those who do not. In many parts of the world, particularly in developing countries, a significant portion of the population still does not have access to a smartphone, computer, or internet connection. This limits their ability to participate in cashless transactions.

b) Financial Exclusion: Some individuals, such as those without bank accounts or credit cards, face difficulties in using non-cash payment methods. This can lead to financial exclusion and limit their ability to engage in digital transactions.

c) User Experience: Cashless payment systems should be designed with user experience in mind. Poorly designed interfaces or complex processes can prevent users from using these methods.

Prospects for cashless payments:

In recent years, cashless payments such as mobile payments, contactless payments and cryptocurrencies have become popular. According to a report by ResearchAndMarkets.com, the global cashless payments market is expected to grow at a compound annual growth rate (CAGR) of 12.2% from 2020 to 2027 and reach \$12.8 trillion by 2027.

One of the main drivers of this growth is the increasing use of mobile payments, particularly in emerging markets. For example, in China, mobile payments have become the main form of payment, with over 80% of the population using mobile payment apps such as Alipay and WeChat Pay.

Another factor contributing to the growth of cashless payments is the growing popularity of contactless payments. Contactless payment systems that use Near Field Communication (NFC) technology allow users to make payments by tapping their device to a payment terminal. This technology is increasingly common in public transportation systems, retail stores, and other high-traffic areas. Cryptocurrencies such as Bitcoin and Ethereum are also gaining traction as a form of cashless payment. Although still a relatively small market, cryptocurrencies offer a level of decentralization and security that traditional payment systems lack. However, their volatility and lack of regulation make them a risky investment for some.

The role of the banking system:

1. Infrastructure and technologies:

Banks play an important role in creating the necessary infrastructure and technologies required for cashless payments. They invest heavily in creating secure and reliable payment networks that enable seamless transactions between different parties. Banks develop and maintain payment processing systems that facilitate the electronic transfer of funds and ensure the accuracy and security of transactions. These systems often involve complex networks connecting various stakeholders, including merchants, card issuers, payment processors, and clearinghouses.

Banks are also investing in developing user-friendly digital platforms and mobile applications that allow customers to access their accounts and make cashless payments

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conveniently. These technological advancements have significantly contributed to the growth of cashless payments by providing user-friendly interfaces and enhanced security measures.

2. Payment card issuance:

One of the main roles of banks in cashless payments is to issue payment cards such as credit cards and debit cards. Banks act as intermediaries between customers and payment networks such as Visa, Mastercard or American Express. They issue these cards to the customers after necessary verification to ensure their credit worthiness or account balance.

By issuing payment cards, banks allow individuals to make purchases without carrying cash. Payment cards offer consumers convenience, security and flexibility, allowing them to transact at a variety of merchants around the world. Banks also provide additional services related to card management, such as setting spending limits, monitoring transactions for fraud, and offering rewards programs to encourage card use.

3. Merchant Services:

Banks play a crucial role in enabling businesses to accept cashless payments from their customers. They provide merchant services that enable businesses to integrate payment processing systems into their operations. Banks offer point-of-sale (POS) terminals, online payment gateways, and other tools that allow businesses to accept payments through various channels.

These services help businesses expand their customer base by catering to individuals who prefer cashless payment methods. Banks also provide additional services such as transaction analysis, reporting and reconciliation to help businesses manage their funds effectively. By offering comprehensive services to merchants, banks contribute to the growth of cashless payments in the commercial sector.

4. Security and Fraud Prevention:

Banks play an important role in ensuring the security of cashless payments. They employ robust security measures to protect customer financial information and prevent fraudulent activity. Banks invest in technologies such as encryption, tokenization, and multi-factor authentication to protect transactions and customer data.

In addition, banks monitor transactions for suspicious activity and use sophisticated fraud detection systems to quickly identify and prevent fraudulent transactions. Their expertise in risk management and fraud prevention helps maintain trust in cashless payment methods among consumers and businesses.

5. Compliance with regulatory documents:

Banks are subject to a strict regulatory framework governing cashless payments. They must comply with anti-money laundering (AML), know-your-customer (KYC), data privacy, consumer protection and financial reporting regulations. Banks play a critical role in ensuring compliance with these regulations by implementing robust internal controls, conducting regular audits and reporting suspicious activity to appropriate authorities.

By complying with the requirements of regulatory legal documents, banks contribute to the overall integrity and stability of cashless payment systems. Their compliance efforts help reduce the risks associated with money laundering, fraud and other illegal activities.

The role of the state:

The state plays an important role in the development of cashless payments, because it has the right to regulate and control the financial sector. Governments are actively promoting the

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adoption of digital payments and cashless transactions and are implementing policies and initiatives to support this goal.

One of the main ways for the government to develop cashless accounts is to create digital payment platforms and systems. For example, many governments have launched their own digital payment platforms, such as the Indian government's Unified Payments Interface (UPI) and the Chinese government's Alipay and WeChat Pay. These platforms allow users to make online payments, transfer money and access a range of financial services. In order to encourage the adoption of cashless payments, the state also allocated incentives and subsidies to business entities and individuals. For example, many governments have offered tax breaks and other benefits to businesses that adopt digital payment systems. In addition, some governments have provided subsidies to help low-income individuals access digital payment systems and cashless accounts.

Another way for governments to support cashless accounts is to implement laws and regulations that support digital payments. For example, many governments have passed laws requiring businesses to accept digital payments or prohibiting the use of cash in certain transactions. These laws and regulations help create a level playing field for digital payments and cashless accounts and promote their adoption.

Governments have also invested in infrastructure such as high-speed internet and mobile networks to support the development of cashless accounts. This infrastructure is essential for the operation of digital payment systems and cashless accounts, and has helped to increase access to these services.

Summary:

The development of cashless payments creates both opportunities and challenges for the banking system and the state. To address these issues, it is critical for governments and regulators to create clear rules and guidelines, while banks must invest in innovative products and services and manage the risks associated with digital payments. By working together, the banking system and the state can facilitate the adoption of cashless payments and increase the efficiency of financial transactions.

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Risks and prospects of state regulation of the financial technology market

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Annotation: The financial technology (fintech) industry has experienced significant growth in recent years and revolutionized the way financial services are delivered and consumed. As this sector continues to expand, governments around the world are struggling with the issue of how to effectively regulate it. State regulation of the Fintech market provides both risks and prospects that must be carefully considered.

Keywords: Financial technology market, economic risks, legal risks, cyber attacks, Federal Reserve, Sandboxes and innovation centers and hacking.

Risks of government regulation:

The financial technology market consists of technologies aimed at automating and optimizing activities in the financial sector. These technologies include processes used by governments and other financial organizations to manage financial transactions and analyze financial data.

States are constantly faced with the risks of regulating the financial technology market. These risks may include:

1. Economic risks: The financial technology market allows automation and optimization of activities in the financial sector. This can lead to economic losses due to errors in automated processes or improper analysis of financial data. For example, errors in the automated finance system can lead to delays in payment processes and incorrect analysis of financial data.

2. Legal risks: Financial technology market, including personal information and financial information. This requires that users' personal information is protected and financial information is properly stored. If the financial technology market does not provide adequate protection, it can lead to the diversion of personal information and financial information and the unauthorized use of documents.

3. Cyber-attacks: The financial technology market operates through the Internet and other electronic means of communication. This increases the risks associated with hacking and cyber-attacks. Attacks on electronic payment systems, bank accounts and other financial transactions in the financial technology market can lead to attacks. These attacks can lead to financial losses for financial institutions and users.

States are taking several measures to reduce regulatory risks in the financial technology market. These measures may include:

1. Combating economic risk: States will review and update the financial technology market to minimize the risk of automated processes becoming error-prone. In this case, the development of technological solutions in the field of finance and good training of employees are important.

2. Protection from legal risks: States update their laws and regulations to ensure a high level of protection of personal data and financial data. This allows for proper storage and protection of data for users and financial organizations.

3. Fight against cyber-attacks: States act in the field of cyber-security to prevent attacks and hacks in the financial technology market. This allows financial organizations and users to receive minimal financial losses.

Prospects for state regulation:

As the financial technology (fintech) industry continues to grow and evolve, regulators are facing new challenges in overseeing and regulating these innovative financial services. While some countries have taken a more proactive approach to regulating fintech, others have been hesitant to introduce strict regulations. Some perspectives on government regulation in the FinTech market:

1. Increased regulation: Many countries are expected to increase regulation of FinTech companies, particularly data privacy and security, consumer protection and anti-money laundering (AML). This increased oversight may require more frequent inspections and audits of fintech companies, as well as licensing requirements.

2. Government Regulation: Unlike traditional financial institutions, which are regulated by federal agencies such as the Federal Reserve and the Office of the Comptroller of the Currency, fintech companies are regulated by the government. This means that each state may have unique regulations and requirements for fintech companies operating within their borders.

3. Sandboxes and innovation hubs: some states have established "sandboxes" or innovation hubs to facilitate the development and testing of FinTech products and services. These sandboxes provide a controlled environment for FinTech companies to experiment and innovate without the burden of strict regulations.

4. Cooperation with Federal Agencies: Some states are working closely with federal agencies such as the Consumer Financial Protection Bureau (CFPB) to develop and implement regulations for FinTech companies. This partnership is designed to ensure consistent and effective regulation of FinTech companies, while enabling innovation and growth.

Summary:

Government regulation of the financial technology market presents risks and prospects that must be carefully balanced. While excessive regulation can stifle innovation and impose compliance burdens on fintech companies, effective regulation can protect consumers, increase system stability, and promote fair competition. Striking the right balance between innovation and regulation is critical to harnessing the full potential of fintech while mitigating the associated risks.

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Digitization of the banking system: improvements and benefits

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Annotation: Digitization of the banking system has radically changed the activities of financial institutions and the methods of servicing their customers. With the development of technology, banks have managed to automate many of their processes, improve customer experience and improve efficiency. In this article, we will consider the improvement and benefits of digitization in the banking industry.

Keywords: digitization systems, Bank digitization services, mobile applications, credit cards, transparent prices, liquidity reserves, risk analysis, risk tolerance, monitoring and control.

Improved customer experience

Improved customer experience in the digitization of the banking system refers to the experiences of customers using the digitization services offered by banks. Digitization is a type of automation of financial transactions between banks and customers. These systems allow customers to perform financial transactions quickly and reliably.

Digitization systems offer various services to customers, such as account management, money transfers, working with loans and credit cards, checking accounts, etc. These systems are also useful for banks, helping them to perform financial transactions efficiently. An improved customer experience is important for banks because these customers are satisfied with the bank's digitization services, and their level of service usage can increase the bank's costs and profits. Improved customer experience allows banks to create customer convenience, improve service quality, and strengthen customer relationships with the bank.

Banks use various methods to promote improved customer experience. First and foremost, banks offer a highly personal service to customers. These personal services are determined on the basis of the client's requirements and needs, and are designed to facilitate their digitization process. For example, a bank may allow customers to manage their accounts through mobile applications or offer loan forms tailored to the customer's requirements.

Secondly, banks strive to provide quick and efficient service to customers. Speed and reliability of digitization systems are important to customers. Banks develop automated systems to achieve this goal and strive to perform financial transactions quickly and accurately. This saves time and energy for customers and allows them to complete financial transactions quickly.

Thirdly, banks strive to improve the quality of customer service. Reliability and security of digitization systems are important to customers. Banks update their systems and monitor security developments. This will help provide customers with a reliable digital experience and strengthen their bond with the bank.

Improved customer experience is important for banks because these customers are satisfied with the bank's digitization services and their service utilization rate can increase the bank's profits. Banks, on the other hand, use personal service offering, fast and efficient service delivery, service quality improvement and security measures to promote an improved customer experience.

Increase efficiency

There are several important steps banks can take to improve the quality of banking services for customers. These include:

1. **Improve customer service:** Banks should prioritize excellent customer service by training their staff to be friendly, helpful and responsive to customer needs. This includes offering multiple channels for customers to contact the bank, such as online chat, telephone and in-person meetings.

2. **Investment in Technology:** Banks should invest in technology to improve the efficiency and convenience of their services. This can include online banking platforms, mobile banking apps and ATMs that allow customers to access their accounts and conduct transactions 24/7.

3. **Offering a wide range of services:** Banks should offer a wide range of services to meet the diverse needs of their customers. This can include loans, savings accounts, credit cards and other financial products and services.

4. **Provide transparent pricing:** Banks should provide transparent pricing for their services so that customers know exactly what they are paying for. This includes clearly listing all fees and charges on the bank's website and in branch.

5. **Develop a culture of innovation:** Banks should develop a culture of innovation by encouraging their employees to think creatively and come up with new ideas to improve services. This includes holding regular brainstorming sessions and giving employees the resources to develop and test new ideas.

Risk management

The main risks for banks can be:

1. Credit risk:

Banks may face the risk that the borrower will lose the ability to repay the loan during the financing process. Credit risk is associated with the borrower's inability to repay the loan or delay in repayment. Banks check borrowers' solvency (ability to finance) and require collateral to manage this risk.

2. Liquidity risk:

Banks must have sufficient funds to meet the demands of their customers. If the bank's liquidity level is low, then the demands of its customers will not be paid and the bank's operational activities may suffer. In order to manage this risk, banks need to effectively manage liquidity and maintain liquidity reserves.

3. Risk of development:

The development risk for banks arises from changes in the financial system. These changes can be caused by factors such as the loss of financial markets, changes in exchange rates, changes in the political and economic situation. Banks need to adjust their financing policies and strategies to manage this risk.

The following methods can be implemented to manage risks in the digitization of the banking system:

1. Risk analysis:

Banks carry out the process of identifying and analyzing risks. In this process, banks evaluate the solvency, liquidity level and development potential of their clients. In doing so, banks use statistical data, analytical models and survey analysis to analyze risks.

2. Risk management strategies:

Banks set strategies and policies for risk management. These strategies help determine the bank's risk tolerance, funding policy and liquidity level. Banks can use methods such as purchase of insurance policies, land claims and loan portfolio diversification to manage risks.

3. Monitoring and control:

Banks implement risk monitoring and management process. In this process, banks monitor risks, collect information about changes in risks and take necessary actions to keep risks to a minimum. In the process of monitoring and control, banks use statistical data, reports and monitoring systems.

Risk management is important in the digitization of the banking system, as it helps to maintain the bank's financial results and operational activities in an efficient manner. Banks must implement analysis, strategy and monitoring processes to manage risks.

Cost savings

Saving costs in the digitization of the banking system, that is, automating and optimizing the bank's financial operations, is one of the important topics in the banking sector today. Digitization enables banks to manage costs more efficiently and requires the use of technological tools to produce this process.

The main goal of digitization is to automate financial operations of banks, reduce costs and simplify management processes. This allows banks to optimize and streamline financing processes. Digitization makes it easier for banks to manage costs more efficiently and even reduces errors and omissions.

Digitizing the banking system has several significant cost savings benefits. First, this process automates financing operations for banks, adding metrics to people's work activities. Digitization enables cost-effective management and helps banks optimize their financing processes. This will simplify the work of banks and reduce errors and omissions.

Second, cost savings in the digitization of the banking system will allow you to reduce costs by automating the processes of financial transactions. This makes financing processes more efficient for banks, making financing easier and reducing errors and omissions. Digitization allows banks to automate their financial operations and manage costs efficiently, and requires the use of technological tools to produce this process.

Thirdly, digitization of the banking system will save costs, optimize financing processes for banks and increase efficiency. Digitization makes it easier for banks to manage costs more efficiently and even reduces errors and omissions. This will simplify the work of banks and reduce errors and omissions.

Saving costs in the digitalization of the banking system is an important topic in the banking sector, it allows to reduce costs by automating the processes of financial transactions. Digitization helps banks optimize their financing processes, increase efficiency and reduce errors and omissions. This process requires the use of technological tools for production.

Summary:

In conclusion, digitization has brought significant improvements and benefits in the banking sector. From improving customer experience to improving efficiency and cost savings, digitization has transformed the way banks operate and serve customers. Using advanced technologies such as artificial intelligence, blockchain and cloud computing, banks can continue to innovate and stay ahead of the competition.

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1. "Digital Transformation in Banking: A Roadmap for Success" by The Boston Consulting Group.
2. "Digital Banking: The Next Generation of Customer Engagement" by Accenture.
3. "The Future of Banking: How Digitization is Changing the Industry" by Deloitte.
4. "Customer Satisfaction Banking: The Impact of Service Quality on Customer Retention" by Journal of Service Research
5. "The Impact of Technology on Banking Services: A Literature Review" by Journal of Financial Services Marketing
6. "Banking Innovation: A Literature Review and Implications for Practice" by Journal of Financial Innovation



ИСХОДЫ БЕРЕМЕННОСТИ ПРИ ПРЕЖДЕВРЕМЕННОМ
РАЗРЫВЕ ПЛОДНЫХ ОБОЛОЧЕК

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Резюме (Abstract). Одним из самых неблагоприятных осложнений, встречающихся при угрожающих преждевременных родах, является преждевременный разрыв плодных оболочек (ПРПО). ПРПО при доношенной беременности считается важнейшим фактором риска осложнений беременности, угрожающим здоровью плода и матери, определяет высокий уровень перинатальной и младенческой заболеваемости и смертности.

Цель исследования: изучить причинные факторы ПРПО и его влияние на здоровье женщин.

Материал и методы: материалом исследования явились истории родов 106 беременных, у которых роды осложнились ПРПО в сроках 37–39 нед. гестации, родоразрешенных в Бухарском областном перинатальном центре за период 2017–2019 гг. Изучены анамнестические данные соматического, акушерско-гинекологического статуса всех родильниц. При сборе анамнеза тщательно изучено течение настоящей и предыдущих беременностей, родов и послеродового периода. Также проанализированы лабораторные параметры, состояние вагинальной флоры, степень готовности родовых путей, другие особенности (кровотечение, врожденные пороки развития плода, антенатальная гибель плода, признаки хориоамнионита, неубедительное состояние плода), результаты ультразвукового исследования матки и плода.

Результаты исследования: средний возраст женщин составил 26,5 года. У всех женщин беременность протекала на фоне отягощенного анамнеза с сочетанием акушерских, гинекологических и соматических заболеваний. Среди пациенток с ПРПО 20,7% (22 женщины) имели низкое социально-экономическое положение; 11,3% (11 женщин) — вредные привычки (наркотическую и никотиновую зависимость), 20,7% (22 женщины) — профессиональные вредности и 30,2% (32 женщины) — отягощенную наследственность.

Выводы: ретроспективное изучение историй родов показало, что основным фактором, способствующим ПРПО, является отягощенный акушерский, гинекологический и соматический анамнез, что имело место во всех случаях. ПРПО как следствие патологического роста условно-патогенной цервика-вагинальной микрофлоры в 26,4% случаев явился причиной хориоамнионита, что способствовало значительному увеличению удельной частоты акушерской патологии.

Ключевые слова: беременность, хориоамнионит, амниотическая оболочка, преждевременный разрыв плодных оболочек, индукция родов, микрофлора влагалища.

Актуальность

Одним из самых неблагоприятных осложнений, встречающихся при угрожающих преждевременных родах, является преждевременный разрыв плодных оболочек (ПРПО). ПРПО при доношенной беременности считается важнейшим фактором риска осложнений беременности, угрожающим здоровью плода и матери, определяет высокий уровень перинатальной и младенческой заболеваемости и смертности. Осложнение родов ПРПО является одной из важнейших проблем современного акушерства, становясь причиной инициации родовой деятельности в 8–92% случаев в зависимости от срока беременности.

Проблема осложненных родов является лидирующей в структуре перинатальной заболеваемости и смертности.

Перинатальная заболеваемость в большинстве случаев обусловлена внутриутробными инфекциями, ПРПО, который отмечается в 24–36% случаев осложненных родов. ПРПО тесно связан с перинатальной инфекцией, повышает в 10 раз риск неонатального сепсиса, высокой перинатальной и младенческой смертности, а также гнойно-септических осложнений у матери. Часто в анамнезе пациенток с ПРПО указывалось: на перенесенную вирусную инфекцию; истмико-цервикальную недостаточность; пороки развития матки; перерастяжение матки вследствие многоводия, многоплодия, макросомии плода; хирургические операции во время беременности, особенно на органах брюшной полости, или травмы. Отмечают также роль в генезе разрыва плодных оболочек во II триместре беременности таких факторов, как расовая или этническая принадлежность, доступность медицинской помощи. Факторы, способствующие ПРПО в различные сроки беременности, остаются не до конца изученными.

Цель исследования: изучить причинные факторы, а также акушерские и перинатальные исходы у пациенток с ПРПО.

Материал и методы

Исследовали истории родов 106 беременных, у которых роды осложнились ПРПО в сроках 37–39 нед. гестации, родоразрешенных в Бухарском областном перинатальном центре за период 2017–2019 гг. Средний возраст женщин составил 26,5 года. Изучены анамнестические данные соматического, акушерско-гинекологического статуса всех родильниц. При сборе анамнеза тщательно изучено течение настоящей и предыдущих беременностей, родов и послеродового периода. Также проанализированы лабораторные параметры (общий анализ крови, биохимический анализ крови), состояние вагинальной флоры, степень готовности родовых путей по шкале Бишоп по показаниям (кровотечение, врожденные пороки развития плода, антенатальная гибель плода, признаки хориоамнионита, неубедительное состояние плода), результаты ультразвукового исследования матки и плода.

Результаты исследования

У всех женщин беременность протекала на фоне отягощенного анамнеза с сочетанием акушерских, гинекологических и соматических заболеваний. Среди пациенток с ПРПО 20,7% (22 женщины) имели низкое социально-экономическое положение; 10,3% (11 женщин) — вредные привычки (наркотическую и никотиновую зависимость), 20,7% (22 женщины) — профессиональные вредности и 30,2% (32 женщины) — отягощенную наследственность.

В большинстве случаев выявлено сочетание нескольких патологий. В таблице 1 приведены данные акушерского анамнеза.

Таблица 1. Акушерский анамнез обследованных женщин (n=106)
Table 1. Obstetrical history of the study women (n=106)

Группа Group	Подгруппа Subgroup	n (%)	Общее количество человек в группе, n (%) Total number in the group, n (%)
Первородящие Primiparas	Первобеременные / First pregnancy	26 (60,5)	43 (40,6)
	Артифициальные аборт в анамнезе / Artificial abortions	6 (14)	
	Самопроизвольный выкидыш / Miscarriage	11 (25,6)	
Повторнородящие Multiparas	Повторнородящие / Two or more pregnancies	20 (31,7)	63 (59,4)
	Роды + артифициальные аборт / Delivery + artificial abortion(s)	18 (28,6)	
	Роды + самопроизвольный выкидыш / Delivery + miscarriage(s)	25 (39,7)	

Из таблицы 1 видно, что среди пациенток преобладали повторнородящие (63 женщины), которые составили 59,4%. Почти каждая третья повторнородящая женщина (28,6%) в анамнезе указывала на искусственный аборт. Репродуктивные потери, такие как неразвивающаяся беременность и самопроизвольные выкидыши, имели место в обеих группах. Беременность завершилась преждевременно у 81 женщины, что составило 76,4%. У 25 женщин беременность пролонгирована до доношенного срока (23,6%).

Изучение гинекологического анамнеза обследованных показало, что более чем у половины беременных — 76 (71,7%) — был осложненный анамнез. 27 женщин (25,5%) указывали на перенесенные заболевания гениталий: цервицит — 26 (24,5%), хронические воспалительные заболевания придатков и влагалища — 40 (37,7%). Инфекции, передающиеся половым путем (хламидийная, герпетическая, уреаплазменная), были диагностированы у 8 (7,5%). Ретенционные кисты яичников диагностированы у 3 женщин (2,8%). Диатермокоагуляция шейки матки по поводу эрозий проведена в 13,2% случаев (14 женщин). Различные гинекологические оперативные вмешательства в анамнезе были у 11 женщин, что составило 10,4%. Ниже приведены данные соматического статуса обследованных женщин (табл. 2).

У всех беременных с ПРПО был отягощенный соматический анамнез. В структуре экстрагенитальных заболеваний преобладали анемия, заболевания щитовидной железы и мочевыводящей системы, а также заболевания ЛОР-органов и желудочно-кишечного тракта.

Изменение микрофлоры влагалища и увеличение в ней количества патогенных микроорганизмов относятся к числу основных причин преждевременного излития околоплодных вод. Состояние микрофлоры влагалища и присутствие патогенных микроорганизмов оценивали путем анализа влагалищного секрета на флору. Забор мазка произведен со слизистой влагалища, шейки матки или мочеиспускательного канала.

Таблица 2. Соматический статус обследованных женщин (n=106)**Table 2. Somatic comorbidities in the study women (n=106)**

Заболевание Disorder	n	%
Анемия Anemia	82	77,4
Заболевания щитовидной железы Thyroid diseases	44	41,5
Заболевания желудочно-кишечного тракта (гастрит, панкреатит) Gastrointestinal disorders (gastritis, pancreatitis)	7	6,6
Заболевания сердечно-сосудистой системы (гипертензия, гипотензия, варикозная болезнь) Cardiovascular disorders (hypertension, hypotension, varicosity)	13	12,3
Заболевания мочевыводящей системы (пиелонефрит, мочекаменная болезнь, цистит) Urinary disorders (pyelonephritis, urolithiasis, cystitis)	31	29,2
Заболевания ЛОР-органов (тонзиллит, гайморит) Ear, nose, and throat disorders (tonsillitis, sinusitis)	61	57,5
Инфекционные заболевания, перенесенные во время настоящей беременности (ОРИ, обострение синуситов) Infections experienced in the course of this pregnancy (acute respiratory infections, exacerbation of sinusitis)	28	26,4
Бронхолегочные заболевания (бронхит, бронхиальная астма) Bronchopulmonary disorders (bronchitis, asthma)	3	2,8
Миопия Myopia	17	16
Другие Others	11	10,4

Вторая степень чистоты была у 31 женщины (29,2%), содержимое влагалища имело кислую реакцию (рН 5,0–5,5) с влагалищными клетками и палочками Дедерлейна в меньшей степени, отмечалось множество анаэробных бактерий, эпителиальных клеток, встречались единичные лейкоциты.

Третья степень чистоты наблюдалась у 58 женщин (54,7%), у них влагалищный секрет имел слабощелочную реакцию (рН 6,0–6,5), палочки Дедерлейна были в небольшом количестве, доминировали анаэробные бактерии, в большом количестве — кокки и лейкоциты.

У 17 женщин (16%) диагностирована четвертая степень чистоты влагалищного мазка, секрет имел слабощелочную реакцию, палочки Дедерлейна отсутствовали, анаэробные бактерии и бациллы были в большинстве, встречались единичные трихомонады или другие возбудители инфекций, лейкоциты — в большом количестве.

В соответствии с Национальным стандартом ведения больных с ПРПО после отхождения околоплодных вод всем роженицам проводили антибактериальную терапию (эритромицин в таблетках по 500 мг через каждые 8 ч) с целью профилактики гнойно-септических осложнений у плода. Для профилактики синдрома дыхательных расстройств назначалась внутримышечная инъекция дексаметазона по 8 мг через каждые 8 ч № 3. При угрозе преждевременных родов назначалась токолитическая терапия — нифедипин по 10 мг через каждые 15 мин (до 5 таблеток).

При сроке беременности от 28 до 34 нед. приоритетной считалась выжидательная активная тактика, целью которой было не допустить развития клинически и гистологически значимого хориоамнионита. 28 (26,4%) роженицам проведена индукция родов в связи с присоединением признаков хориоамнионита или абсолютным противопоказанием к пролонгированию беременности (кровотечения, врожденные пороки развития плода, антенатальная гибель плода, неубедительное состояние плода).

Нижеследующие признаки считались параметрами увеличения риска развития хориоамнионита: рост лейкоцитоза более чем на 15–20% от исходного уровня, содержания нейтрофилов и, особенно, С-реактивного белка, наличие отрицательной динамики в функциональном состоянии системы «мать — плацента — плод» (уменьшение индекса амниотической жидкости, черепного индекса, отрицательная динамика при доплерометрии в среднемозговой артерии плода).

Перед началом родоиндукции проведено влагалищное исследование с целью оценки зрелости шейки матки по шкале Бишоп. У 40,6% обследованных беременных раскрытие, длина, консистенция, положение шейки матки и состояние предлежащей части плода оценивались менее чем в 5 баллов, что определялось как незрелая шейка, у 59,4% женщин была зрелая шейка. Тактика дальнейшего ведения беременных была выбрана согласно протоколу областного перинатального центра. У беременных с незрелой шейкой в сочетании с акушерскими осложнениями по протоколу проводилась индукция родов динопростомом 3 мг по 1 таблетке интравагинально после информированного согласия беременной и родственников (проводилась беседа о возможных осложнениях родовозбуждения). Во время индукции выполняли мониторинг сердцебиений плода и активности матки. Повторную оценку состояния родовых путей проводили через 8 ч для уточнения необходимости продолжения индукции. У беременных со зрелой шейкой применяли выжидательную тактику до развития регулярной родовой деятельности или консилиум врачей принимал решение о родостимуляции окситоцином. 67,8% беременных родоразрешены через естественные родовые пути. С началом регулярной родовой деятельности антибиотик вводили инъекционно. Учитывая высокую чувствительность к ампициллину бактерий влагалища и шейки матки, мы предпочитаем применять данный препарат у женщин с преждевременным отхождением околоплодных вод.

Характер родовой деятельности контролировали с помощью ведения партограмм. При ведении родов, осложненных ПРПО, проводили контроль гемодинамических показателей, температуры тела (каждые 4 ч), общий анализ крови (коагулограмма, С-реактивный белок, кровь на лейкоцитоз 1 раз в сутки, лейкоцитарный интоксикационный индекс; определяли группу крови и Rh-принадлежность), анализ мочи, анализ выделений из влагалища (мазок), УЗИ матки и плода, оценивали общее состояние роженицы.

При критических состояниях, угрожающих жизни женщины (преждевременная отслойка нормально расположенной плаценты, тяжелая преэклампсия, эклампсия, несостоятельность рубца), тяжелой акушерской патологии, незрелости шейки матки с присоединением хориоамнионита, отсутствии условий для срочного родоразрешения консилиум врачей рассматривал вопрос об оперативном родоразрешении.

Выводы

В процессе ретроспективного изучения историй родов обнаружено, что основным фактором, способствующим ПРПО, является отягощенный акушерский, гинекологический и соматический анамнез, что имело место во всех случаях. Наиболее частая фоновая патология — анемия, заболевания мочевыделительной системы и инфекции, перенесенные во время настоящей беременности.

Преждевременное излитие околоплодных вод как следствие патологического роста условно-патогенной цервикальной микрофлоры в 26,4% случаев явилось причиной

хориоамнионита, что способствовало значительному увеличению удельной частоты акушерских патологий.

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**PROPOSALS AND RECOMMENDATIONS ON THE METHODOLOGY OF USING
MODERN GRAPHIC PROGRAMS IN TEACHING THE SCIENCE OF
CONSTRUCTION DRAWING**

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ANNOTATION In this article, theoretical data, rules, drawing methods based on the state standard, which is one of the main factors in teaching typing in educational institutions.

Keywords: Standard, blueprint drawings, spontaneous thinking, pupils, lesson reproduction, didactic standards, rules, readings, duration.

INTRODUCTION

The development of spatial imagination depends on a number of factors. These factors include attention, memory, and imagination. While these factors are known to be key, they are also inextricably linked. If we pay attention, we mentioned above at first that the reason is that if attention is not well developed, the corridor that encourages us to remember what is in the memory is cut off. If the attention is well developed, the performance of the memory will also be good and will serve to remember the necessary information. Imagination is also widely developed when memory is strong. There are the following forms of attention: sensory (perceptual), mental, motor (motor). Cognition is part of cognitive processes such as memory, thinking, and attention helps to increase their effectiveness. Distribution of attention is a feature associated with the ability to successfully perform (combine) two or more different types of activities (multiple actions) at the same time. A high level of attention is one of the inevitable conditions for a successful learning process. Memory is the most important feature of all mental processes, ensuring the unity and integrity of man. The specificity of the activity in which the memory and retrieval processes take place is the basis for distinguishing different types of memory. Some types of memory are defined according to three main criteria:

- 1) moving, emotional, figurative, and verbal-logical according to the nature of mental activity;
- 2) depending on the nature of the purpose of activity - free and compulsory;
- 3) according to the duration of strengthening and storage of the material - is divided into short term, long-term and operational types.

Here are some aspects of the psychological and pedagogical problems of computerization of the educational process:

- it is possible and necessary to use a computer to organize educational activities, taking into account the development of personal qualities of students;
- expands the possibilities of providing computer training information;
- allows you to overcome and quickly correct failures in computer training;
- the computer can serve as an effective means of organizing the interaction of teacher and student, students with each other, providing various forms of interaction;
- the computer dramatically enhances the creative process, performing regular operations that occur naturally and almost always in all human activities;
- the computer actively engages students in learning activities, i.e., manages student movements. The set of practical learning tasks using a computer will be expanded;

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- computers allow the use of tasks to model, diagnose different situations, as well as expand the range of tasks for planning;
- the computer allows you to change the quality of student activity control. This technical device allows you to check all the answers, it is possible to determine the nature of the error; helps to determine the level of formation of individual components of educational activity;
- the computer helps students form a reflection of their activities as the computer allows the student to visualize the outcome of their actions.

People with a rich spatial imagination are quick to receive and analyze information. They are mature professionals in their field. For example, writers in the genre of science fiction, directors of cartoons and movies, architects of buildings and structures, designers of mechanisms and machines. Works created by such experts first appear in several forms in their imagination, choose the best of them, and only then present the result to the public. Detailed imagination is gradually formed and developed in man. First of all, various spatial puzzles and fun tasks, computer games and constructors help with this. Then, in the process of studying geometry and drawing at school, spatial imagination develops. In higher education, subjects such as graphic geometry, drawing and design are taught. The nature of education leaves its mark on the development of spatial imagination. For example, students of the Faculty of Architecture prefer pluton views, students of the Faculty of Technology prefer volumetric sections, students of the Faculty of Mathematics prefer isolines and volumetric sections. Drawing geometry has the features noted as a science and a science, because the main geometric images used in it are abstract elements: a point, a straight line and a surface, that is, the object of abstract imagination. As MPTitova rightly points out, if a student does not have a developed spatial imagination, he or she will not be able to meet technical conditions such as cuts and cuts to visualize the external and internal shapes of the objects being studied. Applying them means that the drawing is completely done. Visual-emotional support is needed to correct errors. The action that comes with imagination leaves the deepest impression associated with it in memory. Spatial imagination is a type of mental activity that allows the creation of detailed images and their operation in solving practical and theoretical problems. It is a complex process that involves not only logical operations, but also many promising behaviors. That is, to identify objects based on the creation and presentation of objectively depicted images, based on adequate images, using real or graphic means. Spatial imagination is a type of figurative imagination that retains all its basic features and at the same time differs significantly from it. This is manifested, first of all, in the fact that the spatial imagination works on the basis of images. During this operation, they are changed in the desired direction. To determine the structure of the spatial imagination can be relied on theoretical data developed by I.S. Yakimanskaya:

1. The structure of spatial imagination is determined by the content of the subject and is formed on its basis.
2. An important condition for the formation of spatial imagination is the use of different visual graphic material.
3. The structure of spatial imagination depends on the role that spatial image plays in the problem-solving process.
4. The characteristics of the structure of spatial imagination are determined by the nature and content of the subject's activities.

The direction and content of this activity is determined by the methods of the problem developed by the presentation methods (or found in the solution process). In general, spatial

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Imagination is a basic skill in understanding, comprehending, and comprehending objects in the real world. Detailed imagination and thinking are used interchangeably in educational psychology, regardless of whether there is a difference between these terms. Spatial imagination is the ability to visualize, which is an innate ability. Imagination is learned or acquired through practice. J. Eliot and IMSmit divide the history of the study of spatial imagination into three distinct stages. An additional fourth stage was proposed by S.Strong and R.Smith. The first stage covers the period from 1901 to 1938 and is characterized by the attempt of psychologists to identify a single spatial imaginary factor. During this period, research focused on identifying visualization as an important factor in cognition. Because at that time, verbal tasks were seen as a key indicator of cognition. It should be noted that the research and development of the graphic design department of the American Society for Engineering Education (EDGD) focuses on visualization. A historical review of SLMiller's research on the development of spatial imagery from 1920 to 1940 (EDGD) is presented. The second phase, covering the period from 1938 to 1961, focused on the search for several spatial imaging factors, two of which were identified. The first factor is geometric shapes with the ability to identify in space, and the latter with the ability to mentally control these geometric figures. In the third stage, from 1961 to 1982, the spatial imaging factors were further enriched. The effects of age, gender, and experience on individual spatial imagination were studied. Engineering applications were enriched with 2D two-dimensional and 3D three-dimensional spaces, complemented by graphical presentations and 2D CAD models. Since the 1970s, automated design systems have been created as an effective and inevitable tool.

The fourth stage involves the process of determining the impact of computer technology on spatial imagination and measuring this psychological feature of the individual, arising from engineering graphics. 2D and 3D CAD systems have been introduced in the engineering graphics education system and are still in use today. The importance of the problem of formation and development of spatial imagination is that a lot of research has been done on this subject. In particular, Uzbek scientists R.Khorunov, Y.Kirgizbaev, I.Rakhmonov, R.Ismatullaev, Sh.Murodov, T.Azimov, D.Kuchkarova, E.Ruziev, P.Adilov on development of spatial imagination, S.Saydaliev, Sh.Abdurahmonov, A.Hamrakulov and others, from foreign scientists I.P.Istomina, O.V.Razumova, L.V.Zanfirova, L.P.Rusinova, A.V.Piliper, Yu.A.Volkova, Ye.P., I.Ya.Kaplunovich, Yu.F.Katkhanov, Ye.I.Korzinov, I.I.Kotov, M.N.Makarov, A.A.Pavlov, V.S.Stoletnev, V.I.Yakunin, P.A.Ostrozhev, I.P. Kaloshin. L.P.Rusinova's work on the use of graphic tasks with a degree of difficulty in the systematic formation of students' spatial imagination in her research work is also of particular interest from the point of view of our research. On the basis of S.S.Saydaliev's Eastern architectural traditions the scientific research work on development of spatial imagination of students is carried out, offers, recommendations and methods on development of spatial imagination are given. The research considered the development of students' spatial imagination with the help of architectural monuments. Today, the development of the theory of computerization of teaching requires the establishment of general and specific criteria for the creation of educational and electronic developments that really increase the effectiveness of educational activities, form a positive attitude and interest in the subject. Student activism and independent thinking problems are one of the didactic roots of the practice. If students are not able to spatially visualize the state of the graphic materials, the teacher's work will not be effective in terms of a positive educational outcome.

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Modern computer technologies and software tools based on them effectively help students to think independently and form spatial imagination in the study of science. In addition to the use of multimedia e-books in the teaching of "Building Drawing", the use of automated design system (ALT) software is highly effective. This category of programs can include ArchiCAD, Revit, AutoCAD, 3d Max, Lumion. To date, the capabilities of ALT graphics software include 3D geometric modeling, parameterization and 4D modeling, and the use of ALT graphics software in science teaching is highly effective. The ALT ArchiCAD program, which is widely used in educational institutions and design organizations today, has such opportunities. These opportunities play a key role in developing students' spatial imagination and independent thinking. Using the ALT ArchiCAD graphics program, many topics in science can be explained. For example, it can be widely used in teaching processes of building plan, building facade, building shear, roofing, interior, exterior and other topics. Today, ensuring the compatibility of new pedagogical technologies, traditional teaching methods and modern computer technologies will be the basis for improving the quality of education. There are the following problems with the use of computer graphics in teaching the subject of construction drawing:

- lack of knowledge of science teachers on graphics programs, computer technology and hardware, as well as graphics;
- teachers' unwillingness to create modern-looking electronic lectures on science topics that develop students' spatial imagination;
- the lack of available electronic lectures, textbooks, methodological guidelines to develop students' spatial imagination;
- lack of rooms for the science of construction drawing and lack of computers and equipment in the lecture halls;
- lack of methods for effective use of graphics programs in the development of students' spatial imagination in the teaching of construction drawing;
- lack (in some cases, lack of computers) designed to use graphics programs that reveal the essence of the science of construction drawing;
- lack of teachers who know graphics programs perfectly;
- lack of classrooms for students to work in a graphic program for independent extracurricular activities.

Based on the above ideas, in order to develop students' spatial imagination, it is necessary to develop manuals, recommendations, multimedia teaching programs for computer modeling of problem problems based on computer modeling, their synthesis, analysis, comparison. The use of computer graphics in the classroom requires a great deal of effort and time from the teacher. Because creating themes in multimedia form on a computer requires a lot of work. But then it acts as a tool that provides a convenient and easy demonstration for the educator.

The advantages of an electronic textbook based on multimedia computer technology are: - easy to edit and fill in data;

- does not require financial resources, ie the ability to solve printing problems;
- if the server is hosted on a computer, it can be used by multiple users at the same time;
- created multimedia electronic textbook, ease of reproduction when the demand for manuals increases;
- convenience in the distance education system;

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The main purpose of the use of computer-assisted learning technology is the formation of students' information processing skills, independent search for, finding optimal solutions for the development of their intellectual abilities, strengthening research activities. This technology does not negate pedagogical technologies, but rather supports them. The combination of pedagogical technologies with modern computer software and techniques is of interest to students.

Students' independent and creative thinking skills can be divided into 3 levels:

- The student seeks ways to solve the problem, complete the tasks, think independently and think.

- The student completes a given task or task independently, but does not take a creative approach. Solves problems in completing the task independently, but does not track how accurate the result is. Can correct a given task or similar problem.

- Strives to use ready-made solutions to a problem.

He asks for help when he has difficulty solving the problem. Does not have the ability to solve a problem or task independently. The purpose of teaching using computer technology is to provide students with a modern view of the knowledge base and the multimedia form in them, to better master the topics studied together, to enrich their knowledge, to develop creative and logical thinking skills, to develop spatial imagination. The creative approach to their work with the help of the acquired knowledge is to move towards a clear goal and to raise their research activities to a higher level. Graphic activity is the most important component of shaping students' spatial imagination and enhancing the skills associated with it. After all, no academic science can develop spatial imagination and spatial hypothesis like drawing. In order for a student to have a clear idea of the shape of an object on a drawing, he or she must have a clear idea of the geometric objects and their interrelationships. It is especially important for students to have the ability to make spatial imagination as well as spatial imagination in graphic preparation. Based on our existing perceptions, we call the activity of our consciousness, which consists in creating images of things and events that we have previously perceived. Imagination can be interpreted in different contexts according to the specific tasks in human practical activity. For example, in graphic activity, spatial imagination is involved in the process of reflecting the relationships and properties of objects in space. Therefore, the role of spatial imagination in the formation and development of skills specific to different areas of graphic representation is incomparable. It should also be noted that spatial imagination and spatial imagination are involved in graphic activities related to the solution of spatial metric problems. Experts say that the level of mastery of the material is 10% when reading, 20% when hearing, 50% when seeing and hearing, and 70% when discussing with others. This means that multimedia combines several modes of communication - text, static image (picture, drawing and graphics), dynamic image (animation and video) and sound (digital and MIDI) - as an interactive product. Especially noteworthy is the use of computer technology in the educational process, as it replaces all the visuals. New requirements included in the complex psychological and pedagogical requirements of the lecture courses of the multimedia educational system: syncretism of the presentation of educational information, full provision of the system of educational activities, the norm of educational information excess, complementarity of traditional and multimedia technologies, as well as the requirements of the dynamically developing theoretical image of students and their impact on the emotional management of learning activities.

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REALITY OF MODERN ALLERGOLOGY, ALLERGY DIAGNOSTICS

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Abstract: The article provides a review of the literature on current and promising directions for the identification and treatment of allergic diseases. Furthermore, the component resolved allergy diagnosis and the use of microarray technology – ISAC – are being considered to determine the level of IgE antibodies to various allergenic molecules.

Keywords: allergen extract, cross-reactivity syndrome, molecular component allergy diagnostics, recombinant allergens, IgE antibodies, molecular allergology, molecular allergy diagnostics, immunosorbent allergen chip.

Allergy is a distorted, namely specific increased sensitivity of the immune system to an allergen as a result of an inadequate response of the immune system

IgE and allergic diseases

IgE was discovered in 1967 [1]. Subsequent studies have proven the role of IgE in the development of type I hypersensitivity. Specific antibodies of class E are synthesized by B cells as a result of the first entry of allergens into the body, which is predisposed to the development of allergies. IgE circulates in the blood and binds to high-affinity receptors (FcεRI) on the surface of mast cells in various organs and on blood basophils. This condition is called sensitization. With the development of sensitization, there are no manifestations of allergy. With repeated contact of the sensitized organism with the causative allergen, symptoms of allergic diseases develop. The development of allergy symptoms is based on IgE-dependent activation of mast cells and basophils. As a result of activation of the latter, a cascade of biochemical processes is triggered, leading to degranulation of mast cells and basophils, followed by the release of a number of biologically active substances, in particular histamine, and the secretion of eicosanoids. The biological properties of these bioactive molecules determine clinical manifestations [2–5].

Thus, the significance of the IgE-mediated immune response in the pathogenesis of type I allergic diseases has been established. Subsequently, it was found that the cause of degranulation may be not only the binding of the allergen to the IgE/FcεRI complex, but also other influences leading to an increase in the intracellular Ca²⁺ concentration with subsequent degranulation of mast cells and basophils. For example, the binding of anaphylotoxins to mast cell receptors [3, 6–8].

An allergen (mainly proteins or substances of a polysaccharide nature with low molecular weight) in the immunological sense is an antigen that, upon first entry into an organism predisposed to the development of allergies, is capable of forming specific class E antibodies, and upon subsequent intakes, binding IgE, i.e. . An allergen is a special type of antigen [2].

Cross allergy

In recent years, the area of fundamental allergies - cross-reactivity, cross-sensitization syndrome (CSS) and the concept of panallergens - has been actively studied with special attention [9–10].

Cross allergy (CA) is an allergic reaction resulting from increased sensitivity to several allergens that are similar in structure. The study of PA mechanisms has become possible only in recent decades thanks to the development of molecular biology. PA can occur in plants, both within the same species and among plants of different species. Each species has species-specific allergenic epitopes (parts of the antigen that directly interact with the antibody) and antibodies produced against them bind only to the epitopes of that particular species. Species-specific allergenic components are the primary sensitizing molecules - the main sensitizer. Proteins with similar structures are often present in closely related species and in phylogenetically distant groups of plants and animals. Antibodies against these structures cause cross-reactivity. Most often, patients with food allergies have pollen cosensitization. PA can also be observed in response to plants, cosmetics, medications and other allergens. Thus, an identical complex of amino acids can be detected in stimuli that are completely unexpected for humans. A striking example of PA is an allergy to latex and peanuts, because... they contain an almost identical set of amino acids. This is why PA is very dangerous, because... a person may not even expect the development of allergic reactions. Specially compiled tables of cross allergens can help determine what PA is present for.

According to statistics, patients with monosensitization are much less common than patients with multipositive results [10].

Identifying the spectrum of sensitization, formulating a diagnosis and prescribing allergen-specific immunotherapy (ASIT) become significantly more complicated if the results of traditional methods of allergy-specific examination reveal polysensitization and clinical and anamnestic data are not sufficiently informative [1].

Panallergens are proteins that share highly conserved sequences, structures, and functions. They are responsible for many IgE-mediated cross-reactions between different sources of plant pollen and food allergens [2]. In other words, allergenic proteins that cause cross-reaction are called panallergens [9].

Allergen molecules are classified into protein families depending on their structure and biological function.

Over the past 2 decades, 14 superfamilies (groups) of pathogenic proteins (PR-pathogenesis related proteins) harmful to the human body, which are allergens, representatives of which can be found in a wide range of natural sources, have been described and identified [4].

Thus, proteins of the PR-10 superfamily can be found in birch pollen, hazel pollen, apple, peach, carrot, peanut, soybean, kiwi and celery. Another example is that one of the reasons for cross-reactivity to various vegetables with an allergy to birch pollen is the presence of profilin in both pollen and food of plant origin. Thus, profilins are plant allergens with pronounced cross-reactivity between phylogenetically distant species.

Another important property of protein is its stability. Allergens are divided into 2 groups: resistant to heat and the action of digestive enzymes and unstable. Allergens, which are thermally stable and capable of maintaining their immunogenicity after the action of digestive enzymes, are most likely to cause severe clinical reactions, including the development of anaphylaxis [5].

The main representatives of allergen superfamilies: PR-10, or Bet v 1 homologs of profilins, lipid transfer proteins (LTP), prolamins - storage proteins, polkalcins (Ca-binding proteins), cross-reactive carbonate determinants (SSD) [8].

Allergens of animal origin with pronounced cross-reactivity - tropomyosins, serum albumins, lipocalins, parvalbumins [9].

Diagnosis of type I allergic diseases

Discussion of issues of allergy diagnostics, the relevance of this problem in practical medicine: every third person around the world is diagnosed with one or more allergic diseases. This topic is the most relevant because it affects both adults and children. Moreover, it is also known that in recent years the course of allergic diseases has become noticeably more severe [2].

Currently, in the patient examination scheme, the first place is taken by the medical history, on the basis of which the most likely causative allergens are searched, which is confirmed or refuted by methods of specific clinical allergy diagnostics (in vivo) and in serological tests to determine specific IgE (in vitro).

In vivo allergy diagnostics - skin testing, provocative tests with allergens, elimination test. The most widely used skin tests are the prick test and the prick test. Skin testing is a method of identifying specific sensitizations in the body by administering a variety of natural allergen extracts through the skin and assessing the inflammatory response. For more than 130 years, this method has served allergists: the method is considered highly specific, accessible, and extremely rarely causes the development of generalized reactions. As a rule, skin tests are performed during the period of remission of an allergic disease.

Despite its universal use, a number of researchers focus on the limitations of this method, in particular for diagnosing allergies to drugs and lack of information - the possible development of false-negative and false-positive reactions [3].

Laboratory allergy diagnostics (in vitro) is a modern trend in allergology. The object of analysis is blood and its serum. One of the main advantages of these methods is their complete safety for the patient. Laboratory allergy diagnostics determines the level of total IgE and detects specific Ig class E, specific for specific allergens. For the first time, at the end of the 60s of the twentieth century, a radioallergosorbent test was developed that allows the determination of class E antibodies specific to water-salt extracts of allergens [4]. In the next 40 years, to determine the level of specific IgE, laboratory allergy diagnostic methods were based on the following immunological research methods [3]:

- ELISA – enzyme immunoassay;
- CHLA – chemiluminescent immunoassay;
- ICA – immunochromatographic analysis;
- Immunoblotting.

In medical practice, the method of enzyme immunoassay on a nitrocellulose membrane, the “immunoblotting” method, best meets modern requirements. This system is based on the following principle: the most common allergens are applied to the surface of nitrocellulose membranes (immunoblot). For an immune reaction, the patient’s serum is added to the container containing the nitrocellulose membrane. The advantage of the method is the simple and quick analysis of a whole set of allergens (up to 20) in one operation (Rida Allergyscreen, immunoblot R-Biopharm AG, Germany).

Traditionally, tests for detecting IgE antibodies are qualitative or semi-quantitative (by class).

Allergy diagnostic methods are constantly being improved. Today the most effective method is ImmunoCAP. ImmunoCAP is an immunofluorescence method, truly quantitative for measuring total IgE, specific IgE to the whole allergen, as well as its components, in particular recombinant allergens, which open up new opportunities in the diagnosis and treatment of allergic

diseases. ImmunoCAP is a tool for detecting ultra-low, minimal concentrations of specific IgE antibodies. The World Health Organization has designated ImmunoCAP technology as the gold standard for allergy diagnostics.

In common practice, tests for the detection of IgE antibodies are based on the use of allergen extracts. Allergen extracts are complex mixtures containing allergenic proteins, non-allergenic protein molecules and other ballast substances. In many substances, allergenic components are represented not by one protein, but by a whole set. For example, 32 different proteins that are part of peanuts and can cause an allergic reaction have been isolated and described; 5 of them are the most significant [5]. Moreover, the spectrum of sensitivity within the same allergen may vary among different people. For example, the main allergenic component of birch pollen causes allergies in 95% of cases where people have an allergic reaction to birch pollen, but there are other components that may cause allergies in some patients and not in others.

In recent literature, an allergen may refer to the source of the allergen (for example, birch pollen), an extract of allergenic proteins, or the only allergenic component of the allergen source.

As allergy diagnostics developed, it turned out that when using an extract, the specificity of this method is somewhat lower than we would like. The reasons are as follows:

- Variability of allergenic extracts. For example, pollen from early flowering trees obtained at different latitudes is different.
- Isolation of extracts may vary from manufacturer to manufacturer.
- The approach to isolating allergenic extracts is aimed at isolating as much total protein as possible rather than isolating the allergenic components that cause allergies.

In the 90s of the twentieth century, instead of allergen extracts, it was proposed to use individual purified or recombinantly obtained allergenic molecules (AM) to diagnose type I allergies. Methods for diagnosing allergic diseases using individual purified or recombinantly obtained AMs in the English-language scientific literature are usually called “component-resolved diagnostics,” which means molecular or component allergy diagnostics [9].

Allergenic components can be obtained either by isolating purified ones from natural sources (natural highly purified allergens) or artificially using molecular cloning technology (recombinant allergens). A recombinant allergen is an artificially produced protein. The essence of the technology for producing recombinant proteins is that a certain section is cut out from the genome of a plant and then inserted into the genome of a bacterium. After which the bacterium begins to produce the desired protein. Most existing recombinant allergens are expressed in *Escherichia coli* cells. The yeast *Kluyveromyces lactis* is also used to express recombinant allergens (RAs). But before using RA in allergy diagnostics, it is necessary to test it for immunogenicity and allergenicity [8]. To indicate the method of obtaining a component, the name is preceded by the letter “r” if the protein is recombinant, and the letter “n” if it is natural.

The use of component allergy diagnostics makes it possible to identify sensitization to a specific component (detailed analysis of sensitization) to assess the prognosis of the disease, the risk of developing systemic reactions, the choice of therapeutic tactics, and to predict the effectiveness of ASIT [2].

The next step in allergy diagnostics is the microarray technology, which today is the newest promising method for determining the level of IgE antibodies to allergens - the immunosorbent allergy chip or immuno-solid-phase method or ISAC. The first report on the development of ISAC was published in 2002 [3]. The essence of the method: to determine the level of IgE antibodies,

nanotechnology and the principles of “microarray” are used, exclusively “n” and “R” allergenic components immobilized on the solid phase (biochip technology) are used. Results are determined semi-quantitatively in ISAC standardized units (ISU) using a biochip scanner.

A special advantage of the test: even very low concentrations of IgE antibodies to more than a hundred allergenic components are detected in a minimal amount of blood (venous or capillary blood is used). ImmunoCAP ISAC allows you to detect sensitization to a large number of allergens simultaneously in one study. The ISAC technique is characterized by high accuracy and specificity: it determines true and cross-reactive sensitization in patients with allergic diseases. The applicability, specificity, significance and informativeness of this method both in research and clinical allergology are widely discussed in the literature [5]. However, these data are very ambiguous. Thus, there are reports of the use of microchip technology (ImmunoCAP ISAC) for the accurate diagnosis of a number of allergic diseases and the effective implementation of ASIT [3]. On the contrary, R.G. Hamilton [4], having analyzed in detail the advantages and disadvantages of the method, and also taking into account its high cost and complex scheme for interpreting the results, expressed the opinion that ISAC is a tool for epidemiological population studies, and in clinical allergology it is better to use traditional methods of laboratory allergy diagnostics.

Thus, one of the most modern promising areas in allergology is the development of molecular allergology, molecular allergy diagnostics. The use of recombinant allergens and biochip technology to determine the level of IgE antibodies to various allergenic molecules makes it possible to identify sensitization not only to the allergen in general, but also to establish to which specific allergen specific IgE are synthesized, to differentiate true IgE-mediated sensitization and cross-reactivity in patients with polyvalent sensitization, assess the risk of developing systemic reactions, the effectiveness of allergen-specific immunotherapy, which will clearly lead to a reduction in the growth of allergic diseases.

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PHRASEOLOGICAL HOMONYMY IN PHRASES

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Abstract: Idioms, in our language, have long been formed in the course of self-development and have evolved over a long period. Some idiomatic expressions consist of a few words and are composed based on their external appearance, as well as their meaning, and they also exhibit differences in style. In our language, while the pronunciation and spelling of idioms are similar, the words often differ in meaning. Words with such forms are referred to as lexical homonyms in linguistic studies. Idioms also exhibit homonymy, and in this article, we will explore homonymy in idiomatic expressions. The identification of homonymous idiomatic expressions was carried out in the works of Karakalpak poet I. Yusupov.

Key terms: lexicon, phrase, homonym, term, dictionary structure, literary text, semantics, idiom, compound words, stylistics.

In our language, the pronunciation and spelling of words are often similar in writing and speaking, but they differ in meaning. This leads to the creation of many words that are homonyms in the field of lexical science. In the Karakalpak language, there are specific lexical homonyms in single words, as well as among more than ten words: "at" - a type of animal, "at" - a verb of movement, "at" - to give something to a person, all spelled the same way. However, in idiomatic expressions, it can be observed that there are two distinct meanings within the same structure, especially in the case of homonymous idioms. For example, in the phrase "basına koteriw I" and "basına koteriw II," the word components have the same lexical meaning, but they convey different meanings in idiomatic expressions. In the first one, it implies playing with children, throwing them into the air, and giving them much attention, while in the second one, it suggests showing respect and honor.

Such homonymy among idiomatic expressions is referred to as phraseological homonymy. Idioms, unlike single words, can have several meanings, making homonymy and polysemy challenging to distinguish in idiomatic expressions. The existence of polysemy or homonymy in the formation of homonyms lies in the fact that their current meanings have been conventionally assigned to either the polysemy or homonymy category by lexicographers, often with several variations. Therefore, fully distinguishing homonyms requires thorough examination, and their uniqueness may not be evident in dictionaries until the proper meaning is attributed to the word. [1,13]

The problems of studying homonyms in the Russian language and the issues related to their usage variations have been discussed in the works and articles of L.A. Bulakhovsky, V.V. Vinogradov, P. Abramenko, and V.N. Teliya[2], where they present their valuable insights.

In the field of Turkish linguistics, the concept of homonymy has been discussed extensively in the works of Q. Akanov, O.S. Akhmanova, M. Belbaev, S. Usmanov, Y. Pinkhasov, and Sh. Rakhmatullaev[3]. Regarding homonyms in the Karakalpak language, N.A. Baskakov [4;100-101] provides relevant examples in his research. Furthermore, the prominent professor E. Berdimuratov [5;83-96] has addressed the issue. The author distinguishes homonyms as lexical homonymy in relation to single words and grammatical homonymy between grammatical forms. B. Yusupov, in his research [6], observes that idiomatic expressions exhibit homonymy in the interplay between different word components and their external appearances, as well as in the meaning. Idiomatic

expressions can be homonyms both in terms of their individual word components and their unique meanings, and these homonymy categories can overlap with each other. Idiomatic expressions are particularly challenging in terms of distinguishing polysemy from homonymy, and understanding the nuances between them requires careful scholarly investigation.

In the study of homonymy in the Karakalpak language, M. Qudaibergenov and J. Tengirbergenov, in their own work, distinguish two types of homonymy in the meanings of verbal idiomatic expressions. They emphasize the need to differentiate between these two types of homonymy, highlighting the fact that the term "phraseological homonymy" does not adequately represent the homonymy between idiomatic expressions in the Karakalpak language [7; 85-89].

Homonymy is prevalent in the idiomatic expressions of our language because they carry the peculiarities of the people's traditions, accumulated historical images, and the unique expressions of the language. We can see this in the works of our respected poet, I Yusupov, where he has used homonymous idiomatic expressions. For example, the phrase "koz jumıw" exhibits homonymy in meaning: "koz jumıw I" - weeping, mourning; "koz jumıw II" - taking precautions, being cautious [8;99]. We can observe this duality in the poetic context.

We cannot escape the watchful eyes of this world
They've delved deep into the hearts of our friends
I.Y. (The inscription on the tombstone)
Yet, my patience is unbroken
As I close my eyes, it wanders to the realm of dreams
I.Y. "The dreams of the land"
In search of a gentle ray of light
I didn't reveal my secret; I just closed my eyes.

In these examples, the phrase "koz jumıw" is used with different connotations in the Karakalpak language. In the first example, the phrase "koz jumıw" is interpreted as mourning and weeping, while in the second example, it means taking precautions and being cautious. However, in the third example, the phrase "shayır koz jumıw" appears to carry a broader, more impactful meaning, even though it is not explicitly stated, suggesting the usage of the word "koz jumıw" with an entirely different connotation, which can be understood as an unseen, underlying homonymous usage.

Another example is the phrase "jan beriw." In this phrase, "jan beriw I" signifies giving one's life for the sake of God, which is clearly and positively associated with a profound belief. On the other hand, "jan beriw II" denotes offering one's soul to God, indicating the end of an individual's life, implying mourning and sadness.

The brave horse galloped with a determined stride,
The stormy sea made the ship tremble.
I.Y. ("Poseidon's Wrath")
But for the sake of the world's people,
Ready to give their lives for happiness.
I.Y. ("Such a Homeland is Mine")

In the presented examples, idiomatic expressions exhibit homonymy in meaning. In the first example, "qazalanıw" is used, while in the second example, "jan beriw" is employed in the context of sacrifice for the people's happiness. In our literary language, idiomatic expressions often

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undergo transformations in form and meaning due to their flexibility and are thus prone to genuine homonymy.

Many idiomatic expressions in our language have been utilized with flexibility, meaning changes from their original forms. Idiomatic expressions play an important role in the context, especially when used by free word components. For instance, in our literary language, "kozin ashıw," a free word component, exhibits several homonymous meanings in various poetic works. "Kozin ashıw I" suggests embracing or caring, while "kozin ashıw II" conveys the idea of being born into the world. "Kozin ashıw III" signifies opening one's eyes to the world or having one's eyes opened to various experiences. The poet I Yusupov uses this phrase multiple times in his works, demonstrating its versatility.

Having gained knowledge, I open my eyes,

In reverence to my teacher,

I.Y. "Joldas teacher"

I wonder, is it a new village or town?

I open my eyes to a new, youthful life,

I.Y. "Joldas teacher"

Your words touch my heart like music,

Oh, how this melodious tale captivates your gaze,

I.Y. "The faith of an actress"

Tears streaming from opened eyes

Kissing the earth, wetting the shoe sole,

I.Y. "The faith of an actress"

In the provided examples, the phrase "shayir" appears to be polysemous, serving various homonymous meanings in the context, as seen in several poetic works. In this stylistic usage, the idiom enhances its stylistic potential. Additionally, in the brief lines of poetry below, homonymy in meaning is utilized:

In this short five-day life,

No matter what, we are together.

I.Y. ("poet and heart")

If I say "Are we forever guests?"

It's as if I've started a new life for a mere five days.

I.Y. ("The dreams of night")

In the first example, the phrase "bes kunlik" could be interpreted as "worldly" or "life-related." In the second example, the phrase "bes kunlik ayday" is used to describe the girl's quick temper.

Yusupov utilizes free word components with flexibility, often giving rise to new idiomatic expressions. For instance, in the phrase "miyin jew," the free word component "jew" means "many" or "a lot," while "miyin" can imply "saying a lot." I Yusupov employs the "miyin tesiw" form of the phrase. For example:

Wife's test was filled with many questions,

I had difficulty with it today, unlike the old days.

I.Y. ("Joldas teacher")

In such examples, the use of free word components with idiomatic expressions creates a sense of poetry and sophistication in literary works. Sh. Rakhmatullaev, in this context, discusses

the presence of idiomatic homonymy within free word components, emphasizing that these cases should be referred to as idiomatic homonymy, not just homonymy. He uses the term "idiomatic homonymy" to describe the relationship between free word components and idiomatic expressions, highlighting the need to differentiate between them.

These idiomatic homonyms can be frequently encountered in poetic works. For instance, in our language, phrases like "tilge keliw," "jani shigiw," "basina koteriw," "tili shigiw," and others are often used. For example, "tilge keliw" I means "to start speaking, begin a conversation," and "tilge keliw" II means "to reconcile, make peace." "Jani shigiw" I refers to "sobbing, crying," while "jani shigiw" II means "to suddenly feel cold or shiver due to something," or "to be surprised by something." "Basina koteriw" I signifies "to pamper children, indulge them, play with them," and "basina koteriw" II conveys "to treat someone kindly, respectfully, with honor." "Tili shigiw" I represents "starting a conversation," while "tili shigiw" II denotes "initiating an argument or disagreement," expressing opposing views. For example:

Leading them by the hand and softly whispering,

Saying, "I'm home," the children rushed in.

I.Y. ("The Actress's faith")

After this silence, once the words come to your tongue,

I'll tell you something interesting.

I.Y. ("The Actress's faith")

The provided text discusses the existence of homonymic phraseemes in the Karakalpak language and emphasizes that this phenomenon adds depth and richness to poetic expressions, creating unique and vivid imagery. The text mentions that this type of homonymy, as compared to lexical homonyms, is not widespread in the language but is essential in understanding and analyzing the stylistic and expressive aspects of the Karakalpak language. It also highlights the extensive usage of homonymic phraseemes in the poetry of Ibrahim Yusupov and their role in conveying vivid and impactful imagery.

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**ИЗУЧЕНИЕ КИСЛОТНО-ОСНОВНЫХ СВОЙСТВ СОРБЕНТА
НА ОСНОВЕ О,О-ДИАМИНОЭТИЛДИТИОФОСФАТНОЙ КИСЛОТЫ
И ФОРМАЛЬДЕГИДА**

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Аннотация:

Исследование, посвященное кислотно-основным свойствам сорбента, созданного на базе о,о-диаминоэтилдитиофосфатной кислоты и формальдегида, представляет собой комплексный анализ химической структуры, синтеза и применения данного материала. Работа охватывает вопросы синтеза полимерного сорбента, его химической структуры, а также изучение кислотно-основных свойств, включая эффективность сорбции различных компонентов. Результаты исследования подчеркивают перспективы применения данного сорбента в области водоочистки, удаления тяжелых металлов и других промышленных процессов.

Ключевые слова: Сорбент, о,о-диаминоэтилдитиофосфатная кислота, формальдегид, кислотно-основные свойства, синтез, водоочистка, тяжелые металлы, промышленная очистка, экологическая безопасность.

Abstract. The study, devoted to the acid-base properties of a sorbent created on the basis of o,o-diaminoethyl dithiophosphate acid and formaldehyde, is a comprehensive analysis of the chemical structure, synthesis and application of this material. The work covers the synthesis of a polymer sorbent, its chemical structure, as well as the study of acid-base properties, including the efficiency of sorption of various components. The results of the study highlight the prospects for the use of this sorbent in the field of water treatment, removal of heavy metals and other industrial processes.

Keywords: Sorbent, o,o-diaminoethyl dithiophosphate acid, formaldehyde, acid-base properties, synthesis, water treatment, heavy metals, industrial cleaning, environmental safety.

Введение

Исследования в области сорбционных материалов активно развиваются, стремясь к поиску более эффективных и экологически безопасных веществ для очистки воды и других сред от загрязнений. Одним из перспективных направлений в этой области является изучение сорбентов на основе о,о-диаминоэтилдитиофосфатной кислоты и формальдегида.

Химическая структура сорбента

Сорбент на основе о,о-диаминоэтилдитиофосфатной кислоты (ОДЭДФК) и формальдегида представляет собой полимерный материал, обладающий уникальной химической структурой. ОДЭДФК предоставляет сорбенту функциональные группы, способные образовывать комплексы с различными загрязняющими веществами, в то время как формальдегид улучшает механические свойства материала, повышая его стойкость и устойчивость к воздействию различных факторов.

Методы синтеза

Синтез сорбента осуществляется путем реакции о,о-диаминоэтилдитиофосфатной кислоты с формальдегидом. В результате образуется полимер с высокой степенью ветвления и сетчатой структурой. Этот процесс можно регулировать для получения сорбента с определенными свойствами, что делает его универсальным для различных задач очистки.

Кислотно-основные свойства

Сорбент на основе ОДЭДФК и формальдегида проявляет высокую активность в отношении различных кислот и оснований. Это обусловлено наличием аминогрупп и фосфатных групп в его структуре. Сорбент может эффективно улавливать и удерживать кислотные и основные компоненты, обеспечивая эффективную очистку среды от нежелательных веществ.

Применение сорбента

Сорбент на основе ОДЭДФК и формальдегида может быть использован в различных областях, таких как водоочистка, удаление тяжелых металлов, обработка промышленных стоков и даже в медицинских приложениях. Его высокая эффективность делает его перспективным материалом для создания новых технологий очистки и обработки сред.

Экологическая перспектива

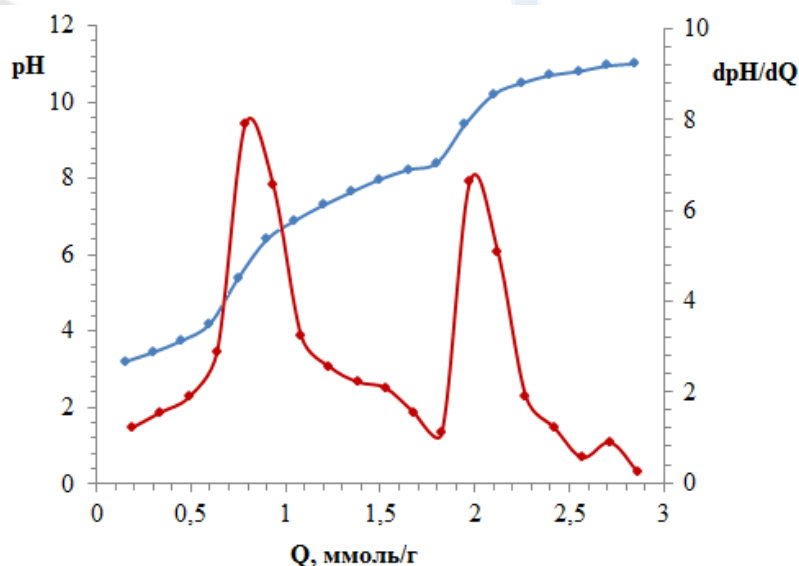
Одним из важных аспектов исследования сорбента на основе ОДЭДФК и формальдегида является его экологическая безопасность. Поскольку материал обладает высокой сорбционной способностью, потребность в использовании больших количеств сорбента снижается, что в свою очередь сокращает воздействие на окружающую среду.

Результаты

Методом потенциометрического титрования изучены кислотно-основные свойства сорбента (МФСФ) на основе О,О - диаминоэтилдитиофосфата и формальдегида. Методом Гендерсона-Хассельбаха была определена величина rK_a , позволяющая определить условные кислотно-основные константы для хелатных полимерных сорбентов.

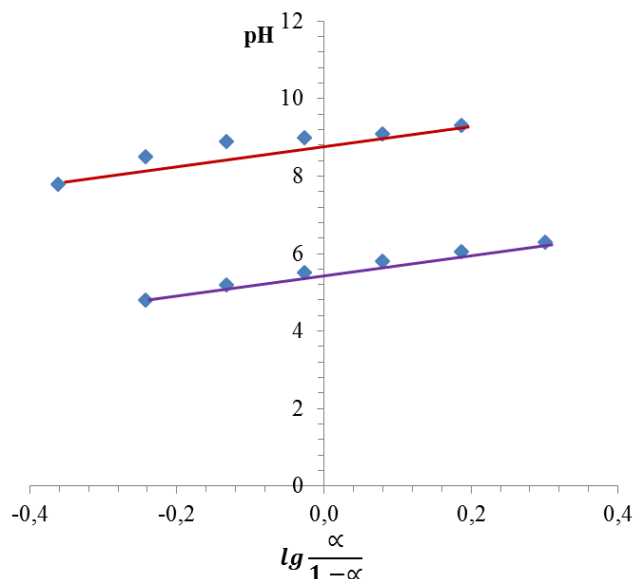
Константы диссоциации сорбента определяли из статических обменных емкостей по иону натрия, рассчитанных методом потенциометрического титрования (MFSF; SAS = 2,8).

На основании полученных данных были построены интегральная кривая потенциометрического титрования по координате Q (количество титранта, ммоль/г) – pH и дифференциальная кривая по координате Q – Д pH/DQ для корректного определения на ней эквивалентных точек (Рисунок 1).



1 . Сорбент МФСФ с NaOH Интегральные и дифференциальные кривые потенциометрического титрования раствором .

Как видно из рисунка, кривые титрования имеют ступенчатую структуру, что свидетельствует о полифункциональности исследуемого сорбента. Кривая титрования, отражающая зависимость pH раствора от количества добавляемой щелочи, позволяет определить максимальную емкость сорбента и сделать только качественное заключение об ионной величине rK активных групп. По уравнению Гендерсона-Хассельбаха был построен график зависимости величины $f(\lg \frac{\alpha}{1-\alpha})pN$ раствора (рис. 2) и рассчитана его линейная функция с учетом углового тангенса.



2 . График для расчета константы диссоциации (rK_d) сорбента МФСФ .

Исследования последних лет показывают, что кислотно-основные свойства хелатных полимерных сорбентов зачастую близки к константам диссоциации кислотно-основных групп мономерных реагентов.

Из данных, полученных в результате экспериментов, можно сделать вывод, что константы ионизации дитиофосфогруппы в сорбенте МФСФ равны 3,35. В литературе особо отмечается, что мономерные диалкилдитиофосфатные кислоты являются сильными кислотами и влияние алкильного радикала на силу кислоты незначительно. Например, в 0,109 М растворе диэтилдитиофосфатной кислоты $rN=1$ и $K_{дис} = 2,4 \cdot 10^{-2}$ ($rK=1,62$). В частности, в водных растворах диалкилдитиофосфатов щелочных и щелочноземельных металлов водородный показатель окружающей среды $pN=7$, как и у солей сильных кислот, и они практически не гидролизуются.

Заключение

Изучение кислотно-основных свойств сорбента на основе о,о-диаминоэтилдитиофосфатной кислоты и формальдегида представляет собой перспективное направление в области разработки сорбционных материалов. Его уникальные химические свойства и высокая эффективность делают его потенциально ценным инструментом для решения проблемы загрязнения окружающей среды. Проведение дальнейших исследований в этой области может привести к разработке новых технологий и методов очистки, способствуя созданию более устойчивого будущего.

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MODERN MEDICINE VERSUS TRADITIONAL MEDICINE AND NATURAL
MEDICINE AND NATURAL TREATMENT.

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Annotation: In this essay I explore that how medicine came to this advancement as well as Modern medicine is the use of scientifically approved therapeutic systems and diagnostic methodology to treat illnesses

Key words: modern advances, diagnosing, medical improvement, Ancient Greece, resulting in operations, injured individuals, the effectiveness of the specialization of knowledge.

Few would contest that advancements in modern medicine have improved the lives of people today. The development of antibiotics, vaccines, cancer treatments, and more means that people are living longer and healthier lives than at any point in the past. Modern advances in medicine, as in other areas, originate in Ancient Times. Today, people are accustomed to the availability and safety of the process of diagnosing and treating various diseases. However, it took humanity many centuries and millennia to achieve this level of medicine. According to numerous studies, there is an assumption that “medicine began to originate in Ancient Greece” (Harust et al. 18). However, various types of healing practices existed in all corners of the Ancient World. The development of science and technology went side by side with the spread of medicine, which made it far from perfect and sometimes even dangerous. In some Asian and African countries, up to 80% of the population relies on traditional medicine for their primary health care needs. Traditional medicine is a form of alternative medicine. Practices known as traditional medicines include traditional European medicine, traditional Chinese medicine, traditional Korean medicine.

In the developed world, evidence-based medicine is not universally used in clinical practice; for example, a 2007 survey of literature reviews found that about 49% of the interventions lacked sufficient evidence to support either benefit or harm. Modern Medicine was built around the model of running tests on sick patients to determine which drug or medical procedure would best deal with some illness. This makes Modern Medicine more precise in determining the diagnosis and how to treat this specific disease. This means it saves time whether in treatment or recovery and resources. In the meantime Traditional Medicine practices based on the theories, beliefs, and experiences that passed on hereditarily, the prognosis is slightly off. Since it's not targeting on a specific treatment, especially if the patient consumes herbal medicine where the sustention is not only the proper agent that needed. This will take more time to show the effect if the treatment works or not.

Medical improvements allowed doctors to expand their knowledge from World War I to modern medicine by changing the way medical care is executed in order to aid in the care of injured individuals. The advancement of medicine in the United States was seen in discovery of vaccines that led to the control of diseases that impact civilians in the United States today. As a result, developments in surgeries taken in various medical specialties and treatments resulting in operations used today. Overall, medicine of World War One era had a significant impact on

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modern healthcare. Medicine these days has changed a lot because of advances in technology. Medicine in the past was dependent on man knowledge and experience not in specialized knowledge as with new medicine. New medicine depends on the study of biology and cell life history. There is a similarity between medicine now and in the past e.g. The principle, the concept and the belief. They are different in the way of diagnoses, medical equipment, medication and the way of treatment.

Traditional medicine comprises medical aspects of traditional knowledge that developed over generations within the folk beliefs of various societies, including indigenous peoples, before the era of modern medicine. On the other hand, Modern Medicine considered more effective since the approach and method they use are more specific in diagnosing diseases and how to treat them. Modern medicine is also scientifically proved. Modern medicine views disease only as a biological condition characterized by abnormalities in the function or structure of certain organs or entire organ systems. While alternative medicine or traditional medicine considers disease more than meets the eyes, besides being biological, they also involve certain aspects like spiritual, psychological, and certain social of the affected person. This is something that modern medicine often ignores.

The conclusion is that even as effective as modern medicine can get, there's some aspect that Modern Medicine ignores, which some of this aspect can be crucial to the success of the treatment or the wellness of the patient. here's when the traditional medicine steps in to fill the blank. as who stated through strict rules and regulations that Traditional and Complementary Medicine can be used to accompany or as a secondary option to modern medicine. It's not to determine which one is better than the other, each has advantages and disadvantages of its own. But it's to complement each other to achieve the same goal, well being of mankind.

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VOCABULARY STRUCTURE

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Abstract: Issues such as dictionary types, vocabulary (the word being interpreted or translated from the dictionary), and the structure of dictionary articles are the main issues in lexicographic theory. Dictionaries are mainly divided into two types: encyclopedic and philological. Concepts related to all fields of science, technology and culture are explained in the encyclopedias. They provide information about natural phenomena, events in social life, and famous people.

Key words: vocabulary, phrases, encyclopedic vocabulary, science, technology.

Dictionaries are of great importance in the theoretical study of the use of words and phrases and in practical teaching of the language. Compilation of different types of dictionaries is of general cultural importance. The dictionary is organized in alphabetical order, and as a convenient guide, it provides knowledge to the public, performs a cultural and educational function. That is why this issue is given great importance. The establishment of special publishing houses and lexicographic institutions can be explained by this.

Issues such as types of vocabulary, composition of vocabulary (the word being explained or translated from the dictionary), and the structure of dictionary articles are the main issues in the lexicographic theory. Dictionaries are mainly divided into two types: encyclopedic and philological. Concepts related to all fields of science, technology and culture are explained in the encyclopedias. They provide information about natural phenomena, events in social life, and famous people. About the word itself, it is limited to showing its origin. Therefore, such dictionaries are called conceptual dictionaries. Usually, such dictionaries also include pictures, maps, and diagrams. In encyclopedias, words and phrases are placed in alphabetical order as the title of the article. Encyclopedic dictionaries are of two types according to their purpose and function: general encyclopedic (encyclopedic) dictionary and field (encyclopedic) dictionary. Examples of common encyclopedias include "British Dictionary" and "Uzbekistan Dictionary". "Encyclopedia of literature" to encyclopedias of a certain field. "Pedagogical Dictionary". "Technical Dictionary". "Agricultural encyclopedia" is included. An encyclopedic dictionary is also called "Qamos" in the East, and "Thesaurus" in the West.

In philological dictionaries, the main attention is paid to the word or phrase and they are explained in every way. Such dictionaries are also arranged in alphabetical order, and the word or phrase to be explained is given as a title.

There are two types of philological dictionaries: general and special philological dictionaries. General philological dictionaries provide an explanation of words used by everyone. They are monolingual, bilingual, multilingual.

Philological dictionaries of one language are divided into several types according to the purpose. For example, explanatory dictionaries, special linguistic dictionaries: etymological dictionary, morpheme dictionary, phraseological dictionary, dictionary of synonyms, orthoepic dictionary, chappa dictionary, dictionary of popular nouns ati, dictionary of place names, dictionary of works of famous writers. For example, all the lexical meanings of words are broadly

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explained in an explanatory dictionary. Each word is explained in the form of a small article, and the explained word is shown as a title. Examples of this are "Annotated Dictionary of the Uzbek Language", 5 volumes, "Oxford Annotated Dictionary of the English Language", 17 volumes "Slovar' sovremennogo russkogo literaturnogo yazg'ka", one volume "Slovar' russkogo yazika" by S.I. Ojegov. will be The "Annotated Dictionary of Russian-International Words" by Olim Usmanov and Renat Doniyorov is included among these. In the dictionary of synonymous words, the shades of meaning and stylistic functions of each word included in the synonymous line are described. An example of this is A. Hojiev's "Annotated dictionary of synonyms of the Uzbek language". Etymological dictionaries explain the origin of words, their initial form and meaning, and the changes that occurred in them during the development of the language.

M.Fasmer's "Etymological slovar' russkogo yazgka", e.V. Sevortyan's "Etymological slovar' tyurkskih yazgkov", SH. Rahmatullaev's "Etymological dictionary of the Uzbek language" is such a dictionary.

A morphemic dictionary is a dictionary that explains the morphemes of words in alphabetical order. In particular, the word to be rewarded is formed from the morphemes of reward (Ian) moq. (See: A.Gulomov, A.N. Tikhonov, R.Kongurov. Uzbek language morpheme dictionary. Tashkent, "Teacher", 1977). In the phraseological dictionary, the semantic and grammatical features of phraseological units (phrases) in the language are explained with the help of examples. It is very useful to juxtapose phraseological homonyms, synonyms and antonyms to give different variants of the same phraseological phrase. Example: Hard-hearted. There is no mercy. Option: stone; stone volunteer; hard-heartedness. Synonym: stone heart-heart stone. Antonym: mind (i) empty; soft heart - soft heart. Analogy: Bagritosh; Mehritosh... [Rakhmatullaev SH. An explanatory phraseological dictionary of the Uzbek language. Tashkent. "Teacher", 1978, p. 21].

A dictionary arranged in alphabetical order, depending on the letter of the words, is called a chappa dictionary. For example, words ending with the letter a are given as follows: arfa, bola, dona, sona, pona, tonka, shona. Such a dictionary can be a source for various researches on word formation, morphology and lexicology.

In addition, chappa dictionaries help in learning the phonetic laws of the language, the secrets of poetry (by rhyme). (Book "Obratng'y slovar' uzbekskogo yazgka" by R. Kongurov and A. Tikhonov). There are two types of annotated dictionaries according to their structure: alphabetical dictionaries and nested dictionaries. In dictionaries of the first type, words are given and explained in alphabetical order. The above annotated dictionaries are arranged in this order.

In the second type of dictionaries, only the roots are placed in alphabetical order. And artificial words are explained inside the root article (nest). Such dictionaries provide information about the meaning and form of the words given in the same nest. In the translation dictionaries within two languages, a word or phrase from one language is translated into another language. This includes Russian-Uzbek, English-Uzbek, French-Uzbek, German-Uzbek dictionaries. There are also short translation dictionaries designed for foreign language learners. Sometimes translation dictionaries cover several languages. For example, like "Slovar' naibolee sobukitel'ng'x slov angliyskogo, nemetskogo, franzuskogo i russkogo yazikov".

Philological dictionaries also include dictionaries of various fields. In these, words and terms related to a certain field of science, technology, and production are explained. Terminological dictionaries are the most common among field dictionaries. Such dictionaries are

monolingual, bilingual, multilingual. Monolingual terminological dictionaries explain the terms of one language related to a certain field. These include the books "Slovar' lingvisticheskikh terminov" (1966) by O.S. Akhmanova and "Spravochnik lingvisticheskikh terminov" (1972) by D.E. Rosenthal and M.A. Telenkova, "Dictionary of Geographical Terms" (1964) by H. Hasanov. "Dictionary of Literary Terms" (1967) by H. Hamidiy, SH. Abdullaeva, S. Ibrahimova, "Dictionary of Social and Political Terms" (1976) published under the editorship of Olim Usman can be included. Bilingual terminological dictionaries include N.T. Hotamov's "Brief Russian-Uzbek Terminological Dictionary from Literary Studies" (1969). Sh. Baiburov and N. Takanaev's "Brief Russian-Uzbek terminological dictionary from pedagogy" (1963). An example of multilingual terminological dictionaries is the "Latin-Uzbek-Russian dictionary of normal anatomy" (1964) by A. AAskarov and H. Zohidov.

Dictionary of foreign words is similar to terminological dictionaries. Here, too, words borrowed from foreign languages are explained.

The type of dictionaries is not limited to the above. Thematic, differential, new words, abbreviations, frequency, rhyming dictionaries are also available. For example, in thematic dictionaries, words are grouped according to their meanings. Such dictionaries provide an opportunity to find the most convenient words to express an idea. An example of this is the Roje (Roget) dictionary based on the English language, the last XV chapter of the dictionary named "Kelurnoma" (XVIII century) compiled by Muhammad Yaqub Chingi.

It is natural to create new types of vocabulary in order to meet the growing demands of the people. In current linguistics, work is being done on the issue of creating a thesaurus dictionary (Greek thesaios - source) or an ideographic dictionary. Thesaurus dictionary covers all the words whose meanings are connected with a certain word.

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Elektron tijoratning mamlakat iqtisodiy o'sishiga ta'sirining tahlili

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Annotatsiya. Maqolada O'zbekistonda elektron tijoratning rivojlanish holati, axborot kommunikatsiya texnologiyalarning o'rni o'rganilgan, uning mamlakat iqtisodiyoti o'sishiga hamda mamlakat aholisi farovonligi ta'siri regression tahlil asosida aniqlangan. Shuningdek, mamlakatda elektron tijoratdagi mavjud muammolar va ularni bartaraf etish bo'yicha ilmiy asoslangan amaliy taklif va tavsiyalar ishlab chiqilgan.

Kalit so'zlar: Raqamli iqtisodiyot, elektron tijorat, axborot kommunikatsiya texnologiyalari, iqtisodiy o'sish, aholi farovonligi.

Analysis of the impact of e-commerce on the economic growth of the country.

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Annotation. The article examines the role of information and communication technologies and the state of development of e-commerce in Uzbekistan. Using regression analysis, the impact of the development of e-commerce on the growth of the economy and the well-being of the country's population was revealed. Based on the results obtained, scientifically based practical proposals and recommendations have been developed on the existing problems of e-commerce in the country and their elimination.

Key words: Digital economy, e-commerce, information and communication technologies, economic growth, welfare of the population.

Анализ влияния электронной коммерции на экономический рост страны

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Аннотация. В статье рассматривается роль информационно-коммуникационных технологий и состояние развития электронной коммерции и в Узбекистане. Путем регрессионного анализа выявлено влияние развития электронной коммерции на рост экономики и благосостояния населения страны. На основе полученных результатов

разработаны научно обоснованные практические предложения и рекомендации по существующим проблемам электронной коммерции в стране и их устранению.

Ключевые слова: Цифровая экономика, электронная коммерция, информационно-коммуникационные технологии, экономический рост, благосостояние населения.

KIRISH

Oxirgi o'n yillikda global internet tarmog'ining rivojlanishi, uning yuqori tezlik bilan hayotimizga kirib kelishi, mamlakatning barcha sohalari va inson hayotiga faqatgina qulayliklar yaratishi bilan birga, bir qator imkoniyatlar eshigini ham ochdi. Raqamli iqtisodiyotning rivojlanishi, unda internet texnologiyalaridan ommaviy foydalanishga asoslangan transinstitutsional munosabatlarning o'zgarishi "elektron tijorat" tushunchasining paydo bo'lishiga olib keldi. Elektron tijorat juda tez vaqtda o'zining tranzaksiya xususiyatiga ko'ra, yangi institutsional tsiklning dvigatellaridan biriga aylandi desak mubolag'a bo'lmaydi.

XXI-asrga kelib elektron tijorat ham virtual olamdagi eng yirik, tarmoq iqtisodiyotining asosiy funktsiyalarini ta'minlaydigan tijorat faoliyatiga aylandi [1]. O'ttiz yildan kamroq vaqt ichida elektron tijorat yer yuzi aholisi faol foydalanadigan kuchli media tizimlariga qadar bo'lgan rivojlanish yo'lini bosib o'tdi. Elektron tijoratning yana muhim jihatlaridan biri shundaki, savdo faoliyatini amalga oshirishda korxonalar o'rtasidagi raqobatni kuchaytiribgina qolmay, mahsulot va xizmatlarning sifatini oshiradi hamda ularni monopoliyadan chiqaradi.

Hozirgi vaqtda butun dunyo bo'ylab elektron tijoratning elektron ma'lumot almashish, elektron kapital oqimi, elektron savdo, elektron pullar, elektron marketing, elektron banking, elektron sug'urta xizmatlaridan foydalanish kabi bir qator imkoniyatlari mavjud. Bu esa barcha mamlakatlar iqtisodiy o'sishida yuqori ko'rsatkichlarni namoyon qilmoqda.

Yer yuzida 26 milliondan ziyod elektron tijorat saytlari, savdo platformalari mavjud. 2022 yilda elektron tijorat dunyo bo'ylab chakana savdolarning qiymati qariyb 19 % ini tashkil etib, *chakana elektron tijorat* savdosi **5,7 trillion** \$ dan oshdi.¹ Shundan, onlayn xaridlarning 91% smartfonlar yordamida amalga oshirilganligi ahamiyatlidir. 2023-yilda esa chakana xaridlarning onlayn tarzda amalga oshirilishi 20,8 foiz, elektron tijorat savdosi hajmi 10,4 foiz bo'lishi kutilmoqda [2].

Huddi shunday elektron tijorat mamlakatimiz iqtisodiyotining o'sishiga ijobiy ta'sir ko'rsatmoqda. 2022-yilda elektron tijorat subyektlari soni 159 tani tashkil etib, chakana savdoda elektron tijorat hajmi *10886.8 mlrd. so'mga yetgan*. Mamlakatimiz 2035 yilga borib, YAIM da elektron tijorat ulushini 30% yetkazishni maqsad qilib, bu bo'yicha bir qator chora-tadbirlarni amalga oshirmoqda [3].

Bizga ma'lumki, davlat raqamli iqtisodiyotning asosiy drayveri hisoblanadi. Mamlakatimizda ham bu soha qonun bilan mustahkamlab qo'yilgan. Bular jumlasiga, 2022 yil 29 sentyabrdagi 792-sonli "Elektron tijorat" to'g'risidagi O'zbekiston Respublikasi Qonuni [4], 2021 yil 17 noyabrdagi "Elektron tijorat ma'murchiligini takomillashtirish va uni yanada rivojlantirish uchun qulay sharoitlar yaratish to'g'risida"gi O'zbekiston Respublikasi Prezidentining PQ-14-son qarori [5], Prezidentimizning 2020 yil 5 oktyabrdagi «Raqamli O'zbekiston — 2030» strategiyasini tasdiqlash va uni samarali amalga oshirish chora-tadbirlari to'g'risidagi PF-6079 sonli farmoni [6] va boshqa bir qator me'yoriy hujjatlarni keltirishimiz mumkin.

¹ Xalqaro statistika

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ADABIYOTLAR TAHLILI

Raqamli iqtisodiyot, raqamli tijorat bo'yicha ko'plab xorijlik iqtisodchilar tadqiqotlar va izlanishlar olib borgan.

Masalan, I.Appiah-Otto va N.Songlar axborot kommunikatsiya texnologiyalarining iqtisodiy o'sishga ta'sirini boy va kambag'al mamlakatlar kesimida tadqiq qilgan. Tadqiqotda dunyoning 123 ta yuqori va kam daromadli (45 ta yuqori daromadli, 58 ta o'rta daromadli va 20 ta quyi daromadli) mamlakatlarda axborot kommunikatsiya texnologiyalarining iqtisodiy o'sishga ta'sirini o'rganib, mazkur soha rivojlanishi barcha mamlakatlar iqtisodiy o'sishiga ijobiy ta'sir etganligi, ayniqsa uning ta'siri quyi daromadli mamlakatlarda yuqori bo'lganini aniqlashgan [7].

K.Vu, P. Hanafizadeh va E. Bohlinlar o'z tadqiqotida axborot kommunikatsiya texnologiyalarining iqtisodiy o'sishga ta'siriga oid 1991 yildan 2018 yilgacha nashr etilgan 208 ta ilmiy maqolalarni tahlil qilgan, Natijalar ko'rsatishicha, mazkur sohaga e'tibor tadqiqotlarda axborot kommunikatsiya texnologiyalarining mamlakat iqtisodiy o'sishiga ijobiy ta'siri aniqlanishi natijasida kuchaygan. Bu natija nafaqat nufuzli jurnallarda maqolalar soni o'sishi bilan, balki ushbu maqolalarga iqtiboslar soni o'sishi bilan ifodalanadi [8].

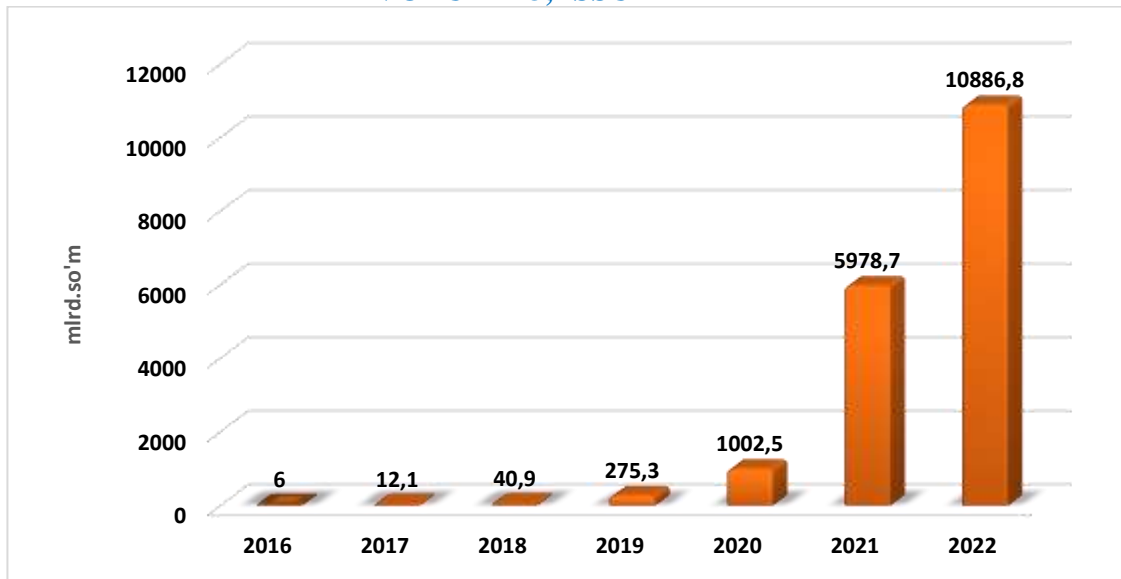
Elektron tijorat va uning mamlakat iqtisodiy o'sishiga ta'sirini aniqlash masalasiga mamlakatimiz bir qator tadqiqotchilarining ilmiy nashrlarida ham o'rin olgan. Jumladan, B.Maxkamov, G.Ismoilova va B Raximovlar elektron tijoratning infratuzilmasining rivojlanish masalalarini [9], S.N.Hamrayeva va N.N.Eshqulovalar mamlakatimizda elektron savdoni rivojlanishining o'ziga xos xususiyatlarini [10,11], Sh.N. Otamurodov va N.N.Eshqulovalar, mamlakatimizda elektron to'lov tizimining transformatsiyasining o'ziga xos xususiyatlarni tadqiq etishgan [12]. Shu bilan birga mazkur tadqiqotlarda mamlakatimizda elektron tijoratning iqtisodiy o'sish va aholi farovonligi yaxshilanishida ta'siri baholanmagan.

TADQIQOT METODOLOGIYASI.

Maqolada elektron tijorat bo'yicha yetakchi mahalliy va horijiy iqtisodchi olimlarning tadqiqot natijalari, xalqaro va milliy statistika ma'lumotlarini taqqoslash, guruhlash, tahlil va sintez, iqtisodiy tahlil, regressiya tahlili, abstpakt mantiqiy tahlil hamda analitik tahlil kabi usullardan foydalanildi. Elektron tijoratning mamlakat iqtisodiy o'sishiga ta'siri ekonometrik model orqali aniqlanib, tadqiqot natijalari asosida sohadagi mavjud muammolarni bartaraf etish bo'yicha ilmiy asoslangan takliflar va tavsiyalar ishlab chiqilgan.

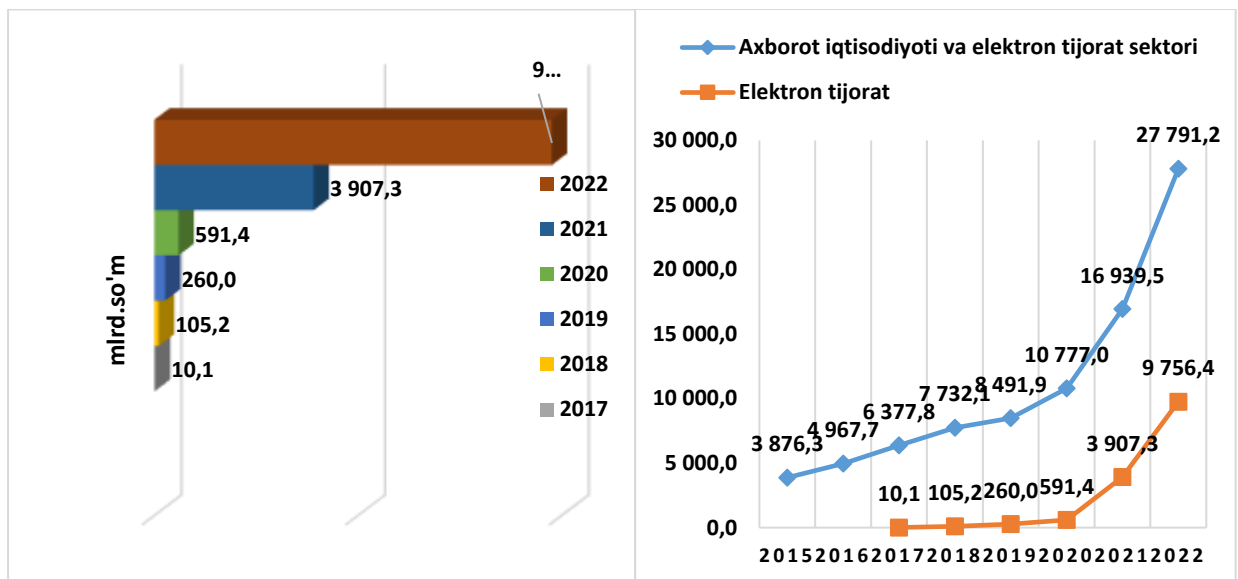
TAHLIL VA NATIJALAR.

O'zbekiston raqamli iqtisodiyot va axborot kommunikatsiya texnologiyalarini barcha sohalarga qo'llashga alohida e'tibor qaratayotgan davlatlar qatorida sanaladi. Mamlakatimizda elektron tijorat va chakana savdo hajmi yuqori sur'atlarda o'sib bormoqda. Davlat statistika qo'mitasi ma'lumotlariga ko'ra, O'zbekistonda elektron tijorat savdo aylanmasi 2022 yilda 10886,8 mlrd. so'mni tashkil etdi. (1-rasm)



1-rasm. O'zbekistonda lektron tijorat savdo aylanmasi (mlrd. so'm) [13].

Shuningdek, 2022-yilda elektron tijoratdan tushgan mablag'lar 2017-yilga nisbatan qariyb 965,9 barobarga oshib, 9756,4 trillion so'mdan ortiqni tashkil etdi (2-rasm).



2-rasm. Yalpi savdoda elektron tijorat ulushi (mlrd. so'm) [13]

2021 yilning yanvar-fevral oylarida ko'rsatilgan bozor xizmatlari umumiy hajmida aloqa va axborotlashtirish xizmatlarining ulushi 5,6 % ni tashkil etib, 2020 yil yanvar-fevral oylariga nisbatan o'sish sur'ati 13,3 % ga o'sganligini ko'rishimiz mumkin² Elektron tijoratni o'zini alohida tahlili ko'rsatishicha, 2017 -2022 yillarda daromadi 10.1 mlrd. so'mdan 9756.4 mlrd. so'mga yetgan, ya'ni 390,5 barobar o'sgan. Mamlakatimizda elektron tijorat axborot tizimlaridan foydalangan holda tuzilgan shartnomalar bo'yicha, shu jumladan, oferta usulida, birja va auksionlar orqali hamda boshqa elektron savdo maydonlari yordamida mahsulot (tovarlar, ishlar va xizmatlar) sotishni o'z ichiga oluvchi tijorat sektorlaridan tushgan daromad 2015 yilda 3876.3

² O'zbekiston Respublikasi Statistika qo'mitasi ochiq ma'lumotlari //(www.stat.uz)

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mlrd. soʻmni tashkil etgan boʻlsa, 2022 yilga kelib esa 27791.2 mlrd. soʻmni tashkil etdi, yaʼni 2015 yilga nisbatan 7,2 barobarga oʻsganligini koʻrishimiz mumkin.

Mamlakatimizda raqamlashtirish jarayonlari va elektron tijoratning iqtisodiy oʻsishga taʼsirini baholash maqsadida:

- internetga ulanganlar soni (IU);
- internetga ulangan kompyuterlar soni (CQ);
- axborot iqtisodiyoti va elektron tijorat sohalarida yaratilgan yalpi qoʻshilgan qiymat hajmi (ECI);
- mamlakatimizdagi AKT xizmatlari importi (ICTE) koʻrsatkichlarini yalpi ichki mahsulotning taʼsirini regression tahlil asosida aniqlashga harakat qildik;

Umuman olgan iqtisodiy oʻsish modellari asosan Kobba - Duglas ishlab chiqarish funksiyasiga asoslanadi. Mazkur funktsiyaning umumiy koʻrinishi quyidagicha:

$$Y = AK^{\alpha} * L^{\beta} \quad (1)$$

Bu yerda K – kapital, L-mehnat resurslari, A, α , β -koefitsientlar.

Ushbu modeldan kelib chiqqan holda biz yuqorida qayd etilgan koʻrsatkichlarning ikki omilli regression modellarni tuzib chiqamiz.

$$Y = A + \alpha IU + \varepsilon_n \quad (2)$$

Bu yerda Y- yalpi ichki mahsulot, A, α , β -koefitsiyentlar, IU internetga ulanganlar soni ε – hatolik

$$Y = A + \alpha CQ + \varepsilon_n \quad (3)$$

Bu yerda Y - yalpi ichki mahsulot, A, α , β -koefitsiyentlar, CQ - internetga ulangan kompyuterlar soni.

$$Y = A + \alpha ECI + \varepsilon_n \quad (4)$$

Bu yerda Y - yalpi ichki mahsulot, A, α , β -koefitsiyentlar, ECI - axborot iqtisodiyoti va elektron tijorat sohalarida yaratilgan yalpi qoʻshilgan qiymat hajmi.

$$Y = A + \alpha ICTE + \varepsilon_n \quad (5)$$

Bu yerda Y - yalpi ichki mahsulot, A, α , β - koefitsiyentlar, ICTE - mamlakatimizdagi AKT xizmatlari importi .

Albatta, regression tahlil sifati undagi omillar va kuzatuvlar soniga bogʻliq. Mamlakatimizda raqamlashtirish va elektron tijorat bilan bogʻliq statistik maʼlumotlar 2015 yildan qayd etilgan (7 yil) bu holatda koʻp omilli regression tahlil natijalari ishonchlilik darajasining yuqori boʻlishini taʼminlash mushkul. Shu sababli tadqiqotda ikki omilli regressiya tahlilini amalga oshirishni maqsadga muvofiq topdik.

1-jadval

Internetga ulanganlar sonining iqtisodiy oʻsishga taʼsiri [14]

<i>Regression statistika</i>				
Umumiy determinatsiya koefitsienti	0,9945			
R-kvadrat	0,9891			

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	<i>koefitsientlar</i>	<i>Standart xatolik</i>	<i>t-statistika</i>	<i>P-qiymati</i>
Y-koefitsient	-65829,989	25260,0144	-2,6061	0,047895
IU	34,9509	1,6400	21,3110	0,000004

Ushbu regressiya tenglamasi statistik jihatdan ahamiyatli, chunki F – statistikaning P - qiymati 0,005 dan kichik, umumiy determinatsiya koefitsiyenti esa 0,99 foizni tushuntiradi. Ushbu tahlil natijasida regrecciya tenglamasi quyidagi ko‘rinishda bo‘ladi:

$$YIM = -65829,9 + 34.65IU + \varepsilon_n$$

2-jadval

Internetga ulangan kompyuterlar sonining iqtisodiy o‘shishga ta’siri [14]

<i>Regression statistika</i>				
Umumiy determinatsiya koefitsienti	0,953			
R-kvadrat	0,907			
	<i>koefitsientlar</i>	<i>Standart xatolik</i>	<i>t-statistika</i>	<i>P-qiymati</i>
Y-koefitsient	-203020	34887,31	-5,81932	0,00211
CQ	1,766499	0,092075	19,18551	0,00001

Ushbu regressiya tenglamasi statistik jihatdan ahamiyatli, chunki F – statistikaning P - qiymati 0,005 dan kichik, umumiy determinatsiya koefitsiyenti esa 0,90 foizni tushuntiradi. Ushbu tahlil natijasida regrecciya tenglamasi quyidagi ko‘rinishda bo‘ladi:

$$YIM = -203020 + 1,766CQ + \varepsilon_n$$

3-jadval

Axborot iqtisodiyoti va elektron tijorat sohalarida yaratilgan yalpi qo‘shilgan qiymat iqtisodiy o‘shishga ta’siri [14]

<i>Regression statistika</i>				
Umumiy determinatsiya koefitsienti	0,993			
R-kvadrat	0,987			
	<i>Koefitsientlar</i>	<i>Standart xatolik</i>	<i>t-statistika</i>	<i>P-qiymati</i>
Y-koefitsient	91756,15	55643,13	1,649011	0,16006
ECI	41,41129	5,913898	7,002367	0,000915

Ushbu regressiya tenglamasi statistik jihatdan ahamiyatli, chunki F – statistikaning P - qiymati 0,005 dan kichik, (Y – koeffitsientini hisobga olmasa) umumiy determinatsiya koeffitsiyenti esa 0,99 foizni tushuntiradi. Ushbu tahlil natijasida regressiya tenglamasi quyidagi ko‘rinishda bo‘ladi:

$$YIM = 91756,15 + 41,4ECI + \varepsilon_n$$

Ushbu regressiya tenglamasi statistik jihatdan ahamiyatli, chunki F – statistikaning P - qiymati 0,005 dan kichik, (Y – koeffitsientini hisobga olmasa) umumiy determinatsiya koeffitsiyenti esa 0,62 foizni tushuntiradi. Ushbu tahlil natijasida regressiya tenglamasi quyidagi ko‘rinishda bo‘ladi:

$$YIM = 70888,41 + 5,88 ICTE + \varepsilon_n$$

Yuqoridagi tahlillar ko‘rsatishicha, tadqiqot uchun tanlangan barcha raqamlashtirish va elektron tijorat ko‘rsatkichlarining iqtisodiy o‘shishga ijobiy ta‘siri mavjud. Tanlangan ko‘rsatkichlar ichida axborot iqtisodiyoti va elektron tijorat sohasida yaratilgan qo‘shilgan qiymat hamda internetga ulaganlar sonining ta‘siri yuqoriligi aniqlandi.

4-jadval

AKT xizmatlari importining iqtisodiy o‘shishga ta‘siri [14]

<i>Regression statistika</i>				
Umumiy determinatsiya koeffitsienti	0,793			
R-kvadrat	0,629			
	<i>koefitsientlar</i>	<i>Standart xatolik</i>	<i>t-statistika</i>	<i>P-qiymati</i>
Y-koeffitsient	70888,41	136509	0,519295	0,065715
ICTE	5,881667	2,01954	2,91238	0,033307

XULOSA VA TAKLIFLAR

Mamlakatimizda elektron tijorat va elektron savdoga bo‘lgan ishonch yil sayin oshib bormoqda. Yurtimizda olib borilayotgan raqamli iqtisodiyotni, elektron hukumatni rivojlantirishga doir qilinayotgan chora-tadbirlar besamar bo‘lmayotganini aytishimiz mumkin.

Raqamli iqtisodiyot, elektron tijorat va online savdo platformalarini yanada rivojlantirish natijasida milliy iqtisodiyotimiz yuksak darajada rivojlanishini ta‘minlashimiz bugungi kunda dolzarb masalalardan biridir.

Raqamli transformatsiya jarayonida elektron infratuzilmani rivojlantirish bo‘yicha chora-tadbirlarni ham nazarda tutish maqsadga muvofiq. Chunki aynan elektron infratuzilma iqtisodiy transformatsiya sharoitlarida ijtimoiy-iqtisodiy munosabatlar faolligini yanada oshirish uchun muhim omil hisoblanadi.

O‘tkazgan tadqiqotlarimiz najalari ko‘rsatishicha, mamlakatimizda raqamli iqtisodiyot infratuzilmasining rivojlanishi natijasida internetdan foydalanuvchilarning sonini oshishi yalpi ichki mahsulot o‘sigiga ijobiy ta‘siri yuqori ekanligini aniqlandi. Shu sababli mamlakatimiz

iqtisodiyotining barqaror o'sishini ta'minlashda mamlakatimizda internet tarmog'ining kengayishi hamda aholi uchun elektron tijoratda foydalanish imkoniyatlarini kengaytirish muhim o'rin tutadi.

Albatta, mazkur tadqiqotda elektron tijoratning iqtisodiy o'sishga ta'sirini baholash uchun barcha zarur ko'rsatkichlardan foydalanish imkoni bo'lmadi. Masalan, elektron to'lovlar hajmi, elektron xaridlar hajmi, elektron xaridlardan foydalanuvchilar soni, elektron do'konlar soni va boshqa. Ammo mamlakatimizda bu sohadagi dastlabki tadqiqot bo'lib keyingi tadqiqotlarda elektron tijoratlarning boshqa ko'rsatkichlarining iqtisodiy o'sishga tahlili amalga oshirilishi rejalashtirildi.

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14. Mualliflar tomonidan regression tahlil natijalari asosida tuzildi

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Annotation: In the article, the novel "A Thousand Faces" by the famous Uzbek writer Amon Mukhtar is analyzed. Basically, poetic speech and writer's style, aesthetic functions of artistic speech-creating tools, formal and substantive uniqueness, and their artistic-aesthetic function in the work are highlighted.

Keywords: novel, language of artistic work, poetic speech, author's speech, exposition, portrait, dream image.

Introduction: It is known that fiction is one of the forms of social consciousness. So, in this way, the way of life of the people, the nation in a certain period, level of consciousness and level, socio-political views, relations and will, that is, the way of thinking, are reflected in the literature. From the time we gained independence to this day, significant works of fiction have been created. One such novel is Amon Mukhtar's novel "A Thousand Faces".

One of the pillars of contemporary Uzbek novels is the work of Amon Mukhtar. Issues such as the poetic speech and writing style of his novel "A Thousand Faces", the aesthetic functions of the tools that create the artistic speech, and the formal and substantive uniqueness create the relevance of artistic analysis and interpretation.

There are different views on the concept of "Artistic language". The well-known literary critic I. Sultan further materializes the concept that "The language of a work of fiction consists of two significantly different parts - the speech of the author and the speech of the characters"¹.

Literary studies do not study language units and levels as separate objects. Perhaps he interprets it as an event of artistic speech that conveys meaning and essence, gives ideological-aesthetic content. Professor Dilmurod Kuronov said that "... the creation of a work using the national language means that the speech phenomenon has been realized and recorded in writing. That is, even in this case, there is no reason to talk about "artistic language", so now we have to talk about artistic speech. Of course, there is no doubt that artistic speech and language are composed of lexical and grammatical tools. Only those lexical and grammatical tools have been realized in accordance with a concrete speech goal, that is, they have become an integral part of this speech, not the national language in general. So, here too, it is correct to speak not about the national language or the artistic language in general, but about the language of a specific artistic work"². It seems that it is appropriate to study speech events not as a subject of artistic and literary language, but as a speech event, subject. It is known that language units are not directed to any ideological-aesthetic or ideological-artistic goal, either individually or as a whole. In a work of art, the text and all the language units and tools that make it up are subordinated to the writer's artistic intention and style. Because the artistic text is a whole.

¹ Literary theory. Tashkent, 1986, pp. 203-230.

² Kuronov D. Fundamentals of literary theory. Navoi University, Tashkent, 2018, p. 238.

So, what materializes artistic speech? In what form and means it is manifested. First of all, artistic speech has two forms. Author speech and character speech. The author's speech comes mainly in the style of a narrator, that is, a narrator. Prologue, epilogue, exposition, landscape, portrait, literary characteristics given to characters in the work are described in the language of the author. The author's speech is the main tool that provides a part and integrity of the work. The author's speech ensures the logic and legitimacy of the flow of real events. It establishes a communicative connection between the reader and the reality of the work. The speech of the character is carried out by means of dialogue, two-plot dialogue and monologues. Through the speech of the character, the speech is individualized, the level of relationships is evaluated, the mental state is clarified, the vision of one's time and faith in the future, the ideal becomes concrete.

In the novel "A Thousand Faces", which we chose as the research object, the author's speech acted as a narrator. In the novel, the author's speech connects all the components, sections and parts, events in the work and creates the whole composition. In this, the writer widely and appropriately used tools such as exposition, landscape, portrait, dream, letter, and literary characterization. There are no random words in the author's speech. In it, regularity prevails over randomness.

The first story of the novel consists of four scenes, each scene has a different exposition. "Exposition (lat. Exposition - explanation) - the introduction, beginning part of the plot; the place where the event of the work takes place, the image of the characters before the conflict, the image of the situation and conditions showing the situation"³ expositions in the scenes are completely different from each other in terms of time and space. Since the hero of the first scene is a real person, the exposition depicts a real time and place. Although the hero of the second scene is the spirit (i.e. Abdulla Hakim), the real reality is observed by the spirit. In this case, the soul is not a participant in events, but an observer of them. Events take place in real space. By the third scene, the situation will change even more. Events do not take place in real space, but in abstract time and space. That is, after the body of Abdulla Hakim was placed in the grave, the events took place in the grave outside of human consciousness and imagination. The events of the fourth scene take place far away from the imagination of the human race, that is, in Mahshargah (hell). The titles of the third and fourth scenes are called "The Flight", "The Torment of the Grave", "The Last Day", and these names alone give an idea of the place and conditions where the events take place. That is why the expositions created by O. Mukhtar are more concise and symbolic than those in traditional novels. In the first scene, the correct exposure is a three-story building on the edge of the city and the forest, while in the second scene, the scattered exposure is used because the events change in terms of time and place. In the landscape, the soul that has left its body is no longer the owner of its body. Now the owner of the corpse is the living people. The soul is with the body wherever it is taken by the people. He follows the attitude of people and even his colleagues. Expositions appropriate to the time and place of events are used.

Correct exposure was used in the third scene. Through the author's speech, images such as the entry of the soul into the grave with the body, the appearance of evil angels in the grave are skillfully depicted. The place where the events of the fourth scene take place (that is, Mahshargah and hell) and the description of the conditions are presented at the beginning of the story. The

³ Boboev T. Basics of literary studies. Tashkent, 2002, pp. 117-118.

events take place in Mahshargah and in Hell. It seems that the expositions used by O. Mukhtar are short and concise, but they are unique.

The role of the literary portrait tool is special in illuminating the outer and inner appearance of the hero, individual and spiritual experiences in the work. When the author creates a portrait of a hero, he does not create it exactly as he wants, but realizes it to the extent that the image requires. At the beginning of the plot, a primitive portrait of the character's character is created. That is, the hero is embodied as an individual and concrete person. The reader creates this human image in his mind and imagination through this portrait image. "Portrait, first of all, helps to embody the character in the eyes of the reader as a concrete person. On the other hand, a portrait in an artistic work has characterological signs. That is, the writer tries to reflect the characteristics of the character in his picture"⁴.

A number of portrait images are found in the novel "A Thousand Faces". The portrait of Abdulla Hakim's girlfriend Halima: "Halima is still the same... people say she is like a doll or a brush besides her small body, her body is as thin as a stick. His face is as clear as cut from white marble, almond-shaped, his eyes are bottomless, black, his eyelashes are like spears..." (the same book, page 24).

Although this portrait seems to be created from the author's language, in fact it is embodied in the imagination of the hero of the work, Abdulla Hakim, in a momentary situation. A portrait is far from a deep individual-psychological image, it contains only an image of a simple appearance. And the next portrait image is completely different. It is not created in the mind of the hero like the portrait above. Directly, it is the creature of the author's speech: "A man with a mixing bowl and pale eyebrows and razor-shaved head was sitting next to a luxurious table, and behind the table this time there was a grumpy, grumpy man" (the same book page 28). The fate of the main character is in the hands of the copies whose portrait was created. The expression in the portrait means that these people are serious, mysterious and dignified figures. The reader will be drawn to the flow of events. The reader is interested in the conflicts between the hero and the people in the portrait.

The portrait of Sadirjon, the hero of the third story: "Sadirjon was a simple, honest, uneducated young man who spent thirty years of his life mainly reading books and treating people!" (the same book, page 73). The portrait of the characters of the first and second stories is almost closely related to each other. Compared to the hero of the first story, Abdulla Hakim, Sadirjon is a very active in social life, a well-known judge in the city, has a good reputation, but is far from fame and wealth, a single guy. Sadirjon and Abdulla Hakim are united by singleness, emigration and the pain of love. According to their character, they are typical characters close to each other.

There are only two dream images in the novel. In the text, the image of a dream serves as a reference to the psychology of the heroes, changes in fate that will occur in life in the near future. Not only this, the fate of the heroes can also be connected with the change of social relations of a certain period. "Through dreams, the writer mainly tries to reveal the inner world, mental state, experiences and dramas, dreams of his characters. A dream also serves as a means of individualizing images"⁵.

⁴ Kuronov D. Fundamentals of literary theory. Navoi University, Tashkent, 2018, p. 100.

⁵ Boboev T. Basics of literary studies. "Uzbekistan" publishing house. Tashkent, 2002. Page 180.

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The first dream image in the novel is presented in the first scene of the first story. Through this dream image, we get an idea of the main character Abdullah Hakim and his lover Halima. In it, the description of the events has a retrospective character, and we will learn the reasons for the hero's separation from Halima. In other words, events like Abdulla Hakim's student years, the moments when he made a deal with Halima, and his mother's introduction to Halima are remembered. In the process of depicting a dream, a portrait of Halima was also created using the author's language. We can say that this dream image performed the function of a prologue because it performed a characteristic function in the novel. This connects the plot line related to Abdulla Hakim and Halima with the logic of previous events.

"While he was lying in the corner with his elbows on his head, he involuntarily moaned at the same time:

Halimajon! Halim! Halima! he said...

Addresses receded, walls slid, doors fell, Halima suddenly entered the room and stopped in front of him...

- Where have you been all these years, Halimajon? Why did not you destroy me?! After all, I cannot live without you! - Finally, he began to tell the girl about his problems. - I have no father, no brothers. My only umbrella on my head, how long has it been since my mother died and left. I have no one left in the world except you! I came to the city in search of you... when you were by my side, these days would not have occurred to me!...

Halima's eyelashes suddenly became wet, she knelt down and hugged him tightly by the neck.

- Do not bleed yourself so much, please. You are still young. What is thirty years for a young man! Everything is still ahead for you. Everything will be fine.

- No, death is whispering around me. They will not kill me! Abdullah whispered...

- You invited me to meet you then. When we met, you handed me a letter...

- I wrote the words I could not say to you...

- There were poems written by you in the letter...

- Yes, - Abdullah confirmed. - I have been interested in poetry since I was young...

- It is my fault. "I was disobedient," Abdullah said. - I was excited. A simple fantasy, a crazy belief drove me crazy! I lived with it for the rest of my life because of my haste that day...

- On that day, they said two words about whether you have your period. They looked at me and said, "You cannot take this to the village, my daughter is very delicate." Then, looking at you, he said: "Split your neck, my son. The young man walks with his head up!" they said...

- With that, the building I rebuilt will collapse. It is all over! Abdullah sighed deeply.

- I do not blame you. It is my fault. "I was disobedient," Abdullah whispered again... Thank you so much, I finally got it. I am not afraid of death anymore!...

Halima left the room as casually as she had entered" (the same book, p. 28).

Through this dream image, the writer introduces the reader to the current situation and connects the events of the past with the present and the future. Through this image, the secrets of the love story between Abdulla Hakim and Halima will be revealed. In a dream, Abdulla Hakim pours out his heart's cries before he has time to tell Halima. The dream takes place in the form of Halima's dialogue with Abdulla Hakim. At the end of the dialog, "Thank you so much, I finally got it." I am no longer afraid of death!" says Abdulla Hakim. This is the last sentence of the dream

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image. This means that Abdullah Hakim, who lost his lover, also lost his way in life. It can be understood that his destiny is coming to an end.

The image of the second dream in the novel is presented in the second story. The heroes of the story are two lovers, Sadirjon and Gulkhumor. Sadirjon, who has lost his lover for a few days, has a dream: "Five ten demons are forming a circle around a roaring bonfire and playing a loud drum".

In the middle of the circle - Gulkhumor. A grinning figure dances by the bonfire, pretending to demons.

"No, just because they sit like demons, they are not really demons!" Sadirjon thought in his dream. - These are people who sold their faith for the sake of wealth and state; Our own real warriors who want to take the reins of life all over the world! The wicked! If there is goodness, they will find it. They do not look at history or today! Now they want to take away my Gulhumor from me!".

In his dream, Sadirjon turned to Gulkhumor and shouted:

- Get out of there, get out! I am telling you my heart" (the same book, p. 94).

Like Abdulla Hakim in the first scene, Sadirjon is destined. During the course of the events, Gulkhumor's destiny will see and hear unheard of events. Events will happen according to the character of the dream image. Sadirjon's concern about Gulkhumor was not in vain. Although Sadirjon lost his lover, he did not lose his way of life, unlike Abdulla Hakim, he is a fighting and selfless person. " ...in the novel, the conscious and unconscious life of the hero (dreams and feelings) are fully described in a logically interdependent manner. On this basis, the connection between sleep and conscious life is restored, the flow of the hero's thoughts and feelings is given. The dream is absorbed into the general psychological picture, and at the same time, the hero realizes all the manifestations and "colors" of his mental anguish and experiences"⁶.

The artistic and ideological task assigned to the author's speech by the writer was carried out in extremely unusual ways. Speaking about the speeches of the author and characters in the novel, they reflect the image and psychology of the time, and the typical symptoms of this society.

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⁶ Umurov H. Literary theory. "East" publishing house, Tashkent, 2002, p. 160.

Financial Security as Reflected by the Dynamics of Banking System Indicators

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Abstract: The financial sector of the economy plays an important role in the development of sustainable economic relations. Financial resources are the basis for the functioning of various business entities, ensuring the continuity of their activities. Based on this, the work examines the key aspects of assessing financial security as a generalized concept of the ability to resist negative phenomena in the financial sector. Banking activity, which plays an important role in economic processes both throughout the country and in individual sectors of the economy and business entities, was chosen as the object of study. At the same time, we take into account the flow approach to account for and reflect the dynamics of the banking system. For this purpose, we use wavelet coherence estimates. The work provides such estimates for specific operating conditions of banking systems. This will allow you to better understand the logic of the study and the results obtained.

Key words: Dynamics, Indicators, Banking system, Financial security, Flow approach, Wavelet coherence

Introduction

Sustainable economic development is impossible without comprehensive financial support. In this aspect, special attention is paid to the functioning of the financial sector of the economy [1], [2]. The effective interconnection of its individual segments and the continuity of movement of funds form the basis of such interaction and development. Moreover, such processes are reflected in the generalized concept of financial security [3], [4]. The key here is, first of all, consideration of the financial security of individual institutions (or multiple business entities) of the financial sector.

Financial security is combined with the general concept of economic security and reflects a set of various measures to prevent the occurrence and development of unforeseen situations in the financial sector [5]-[7]. In general, we can distinguish such components of financial security as: monetary and foreign exchange, credit and banking and budgetary and tax [8]-[10]. Each of these components reflects processes in individual segments of the financial sector of the economy. These processes are also characterized by relations in various segments of the financial market.

In this work, we highlight the banking services market, which allows not only to accumulate the necessary financial resources, but also to redistribute them, observing the conditions of financial security for different business entities. At the same time, financial security is ensured by the support of various financial instruments, methods and approaches for its assessment in order to achieve a certain level and support [11]-[18].

From the point of view of assessing financial security in the banking sector, various indicators of banking activity should be considered, where it is also important to take into account the flow approach [19]-[21]. It is the flow approach that allows us to consider the dynamics of the process and assess the overall state of financial security.

Thus, the main goal of our study is to reveal financial security as reflected in banking performance indicators. To generalize this consideration, we will examine the dynamics of indicators not for one institution, but for the banking system as a whole.

Related work

Banking analysis and financial security are inextricably linked. This is reflected in various works of researchers and practitioners.

For example, L. Drake and M. J. Hall study the efficiency of banking activities based on the analysis of data from Japanese banks [22]. Various indicators for the banking system are used for analysis. For these purposes, a nonparametric boundary approach is used, which is the basis for the analysis of technical and scale efficiency. In particular, efficiency analysis is carried out for individual banks, types of banks and groups of bank sizes. The influence of individual indicators of banking activity on the assessment of efficiency is also taken into account. This allows you to obtain different estimates and link them together to study the level of financial security.

C. Minoiu and J. A. Reyes conduct a global analysis of banking activities, which covers the period 1978–2010 [23]. The authors examine the global banking network using cross-border bank flow data for 184 countries. For this analysis, a streaming approach is used. Therefore, the study emphasizes that the density of the global banking network is determined precisely by the flows associated with certain areas of banking activity. The impact of crises on flow processes and assessment of banks' activities is also noted.

M. Dieter and N. Tkacz draw attention to the possibility of modeling financial security [24]. At the same time, processes that are typical for banking activities are considered, taking into account individual banking applications. The basis of the study is a comparative analysis of individual time series data. These data series describe UK banking activities. The work also uses end-to-end analysis, which corresponds to the flow approach. The importance of conducting a comparative assessment of the processes under consideration is also noted.

The study [25] examines cyber security threats from the point of view of digital banking. Here the authors highlight certain types of risks that generally affect the financial security of banking activities. These risks are associated with the activities of hackers and fraudsters. The authors use the method of theoretical analysis. There are also many references to the results of other researchers. Nevertheless, the paper draws conclusions about the importance of such analysis and its prospects for identifying new approaches to assessing the level of financial security.

T. Ponomarenko, O. Prokopenko, H. Kuzmenko, T. Kaminska and M. Luchykh analyze the current state and ways to improve banking security from the point of view of data on Ukrainian banks [26]. The work examines the theoretical aspects of financial security in banking and ways to improve it. This helps identify the key indicators that need to be considered when analyzing financial security. Among such indicators, in particular, stand out: loan indicators, the volume of assets and their structure, expenses, profitability and much more. The concept of information security is also highlighted separately.

A. Burkhanov summarizes and examines various indicators for assessing the financial security of banks [27]. Particular attention is paid to ensuring liquidity and stability of banks. Based on this, A. Burkhanov believes that these indicators are an important prerequisite for ensuring financial security. The article also summarizes the methodology for collecting indicators that are used to assess financial security.

Thus, it should be noted the importance of the issue under consideration, which is confirmed by relevant studies by other authors. At the same time, an important aspect of such analysis is the consideration of the mutual dynamics of the data.

The study [28] examines a comprehensive risk management system taking into account the achievement of a certain level of financial security of banks. For these purposes, big data analysis methods are used. This allows you to search for various trends in the data being studied and objectively assess the level of security. You can also build various models for mutual data analysis.

D. Malikova considers methods for effectively assessing the level of economic security of banks [29]. The article presents a generalized model for ensuring bank security and proposes an economic and mathematical model for assessing the state of financial stability of banks [29].

M. Rottner, based on quantitative analysis, considers changes in financial security assessments [30]. This takes into account the impact of financial crises and the functioning of shadow banks. The work uses data for the USA.

Wavelet coherence as a tool for analyzing mutual dynamics

To analyze the mutual dynamics of data, which can be used in assessing financial security, the wavelet coherence methodology is usually used. This methodology has proven itself in the study of various economic data [31], [32]. This interest in wavelet coherence is due to the fact that we can study the dynamics of data at different time intervals. At the same time, the data themselves are presented in the form of time series, which reflects changes in banking data over time. In addition, the result for individual intervals can be presented in one window, which is very convenient and informative. Here we can do analysis of relationships between individual time series data and relationships between different time series. This allows for multidimensional assessments of financial security.

So if we have two series of data ($f(t)$ and $h(t)$), each of which reflects the dynamics of an indicator over time t , then we can determine the value of wavelet coherence between the following series of data using the following formula [33], [34]:

$$Q^2(a,b) = \frac{|\mathcal{E}(a^{-1}W_{f(t)h(t)}(a,b))|^2}{\mathcal{E}(a^{-1}|W_{f(t)}(a,b)|^2)\mathcal{E}(a^{-1}|W_{h(t)}(a,b)|^2)},$$

where:

$W(a,b)$ – values of transverse wavelet spectra,

a,b – the scale and center of time localization that determine the scale of the wavelet transform,

\mathcal{E} – smoothing operator,

$Q^2(a,b)$ – square of the wavelet coherence coefficient. $0 \leq Q^2(a,b) \leq 1$. If these values tend to zero, then we have a weak correlation. Otherwise we have a strong correlation [35], [36].

If we are talking about assessing financial security using a streaming approach, then we should take into account the consistency of the data that takes part in such a study. Thus, the assessment of financial security taking into account the dynamics of banking performance indicators lies in the level of consistency of the relevant data.

Then the general methodology for assessing financial security in the banking sector, taking into account the display of the dynamics of various indicators, is:

- the study period and corresponding indicators are selected;
- wavelet coherence estimates are constructed and the level of financial security is determined.

This allows us not only to consider the current level of financial security, for example, for a specific banking system, but also to compare such assessments for different banking systems or for different time periods.

Some data to analyze

Taking into account the fact that the basis of banking activity is funds raised in the form of deposits and loans provided, we will consider such parameters for the banking system as a whole,

such as: the volume of attracted deposits and the volume of loans issued, as well as rates on deposits and loans.

Figure 1 shows the dynamics of deposits and loans in the Ukrainian banking system as a whole over a certain period of time (2005-2019, shown on a quarterly basis). We see that in some time periods there is consistency between the data series under study. However, it should also be noted that there are periods when such consistency does not exist. Therefore, it is important to examine the general dynamics of such consistency and, as a consequence, the assessment of financial security in this aspect.

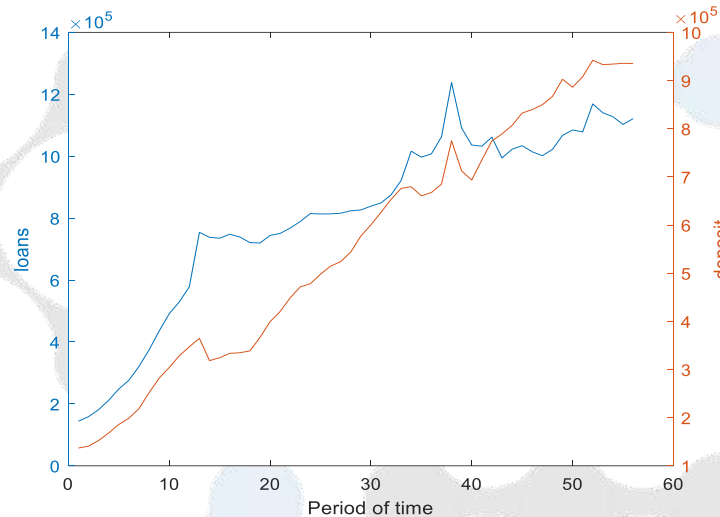
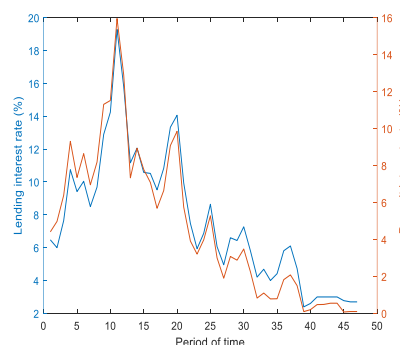
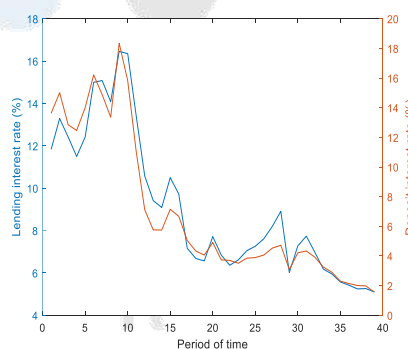


Figure 1: Dynamics of deposits and loans in the banking system of Ukraine in the period under study

Below we show the dynamics of loan and deposit rates for the following countries: Australia (Figure 2a) and Canada (Figure 2b). The data for Figure 2a covers the period 1981-2019, and the data for Figure 2b covers the period 1971-2017. All data is given in annual averaging.



a)

b)

Figure 2: Dynamics of interest rates on loans and deposits in the banking system of Australia (a) and Canada (b)

It should be noted that the dynamics of lending and deposit rates for countries such as Australia and Canada are more consistent than the dynamics of the volumes of attracted deposits and issued loans in Ukraine.

Thus, we can talk about different degrees of consistency in the context of individual indicators of banking activity. The same fully applies to levels of financial security.

Therefore, in the future it is necessary to assess wavelet coherence and understand in this aspect the level of financial security of the banking system.

Wavelet coherence in assessing financial security

Let us first consider the consistency between data series that describe the dynamics of funds raised and loans issued for the Ukrainian banking system. This is presented in Figure 3.

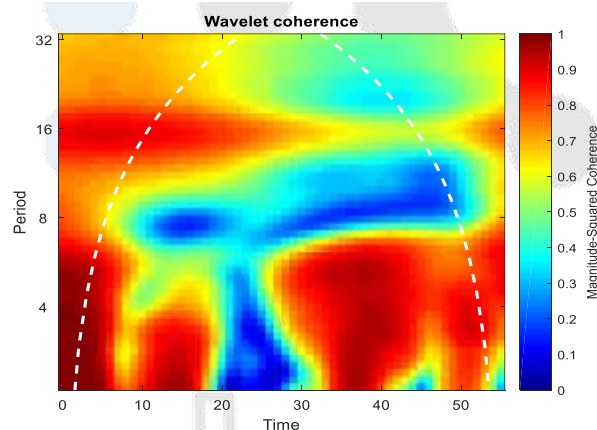


Figure 3: Wavelet coherence between attracted funds and issued loans for the Ukrainian banking system

Figure 4 shows wavelet coherence estimates for data on loan and deposit rates (a – for the Australian banking system, b – for the Canadian banking system).

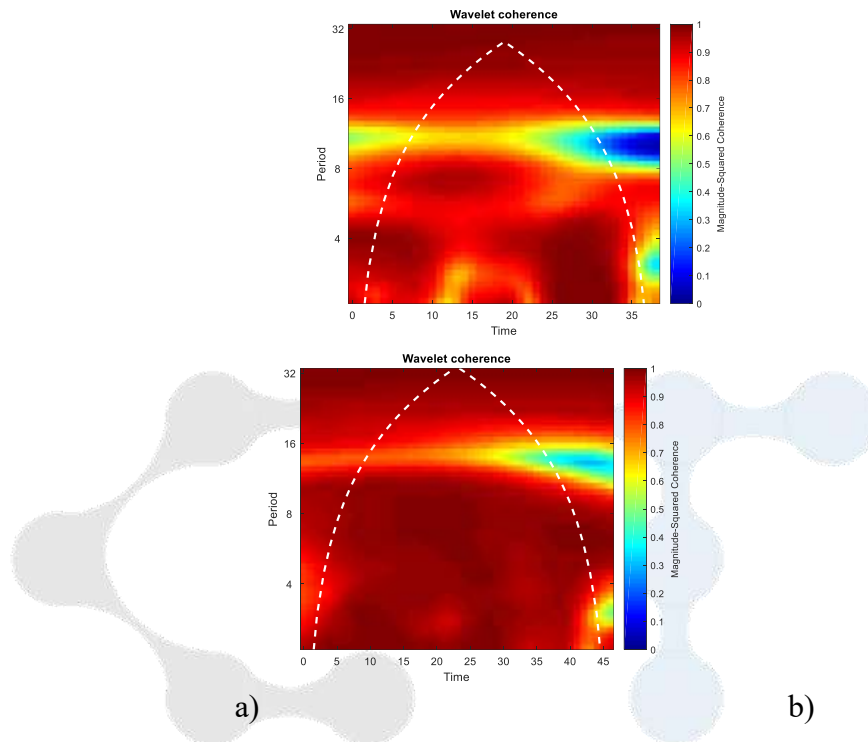


Figure 4: Wavelet coherence estimates for data on loan and deposit rates for the banking systems of Australia (a) and Canada (b)

It should be noted that the consistency between funds raised and loans issued to the banking system in Ukraine is not absolute. There are periods of significant consistency and periods of lack of consistency. At the same time, during periods of great consistency, such consistency is significant. Consequently, we can note that the financial security of the banking system in this aspect is also not perfect. Moreover, it is obvious that in certain periods the financial security of the banking system in Ukraine is at an insufficient level. This is also noted in a number of relevant studies [2], [13], [14]. At the same time, we note that in theoretical terms there should be complete consistency between the volume of funds raised and loans issued in the banking system as a whole.

The picture of consistency between loan and deposit rates is somewhat different from the point of view of the banking systems of Australia and Canada. Here it should be noted that there is significant consistency throughout the entire time interval under study. Although there are also periods, when such consistency decreases slightly. Consequently, in this aspect, financial security for the banking systems of Australia and Canada is at a high level. This is fully consistent with the theoretical point of view and reflects the logic of the key areas of profit and expenses for banks.

If we compare the consistency between rates on loans and deposits from the point of view of the banking systems of Australia and Canada, it should be noted that for the Canadian banking system such consistency is higher. Consequently, the level of financial security in the Canadian banking system is more significant than in the Australian banking system.

Thus, we can talk about the advisability of using wavelet coherence estimates in the study of the financial security of banking systems based on the dynamics of various indicators of banking activity. At the same time, it is possible to assess the level of such security in a comparative aspect.

Conclusion

The work examines various problematic issues of financial analysis of the functioning of banking systems. This discussion focuses on the possibility of conducting financial security assessments based on the dynamics of banking performance. A variety of such indicators makes it possible to obtain such estimates taking into account a certain area of activity of both individual banks and their aggregate.

For the corresponding analysis, it is proposed to use the wavelet coherence methodology. Using specific numerical data, the possibility and feasibility of obtaining various assessments of the financial security of individual banking systems is shown. The proposed approach to considering such estimates allows us to obtain comparative characteristics. This can be used for a comprehensive analysis of the functioning of the banking system, identifying bottlenecks in its financial security.

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Parameters for Mobile Robot Kinematic Model Development Determination

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Abstract:

The problem of creating a mobile robot kinematic model is due to its necessity for controlling the robot. In this case, understanding the design features of the robot, as well as its movers, is of great importance. The primary task is to select the necessary parameters to create a kinematic model. The article discusses the design of the robot being developed. And a choice of parameters is proposed for creating a kinematic model of this mobile robot.

Key words: Mobile robot, Kinematic model, Kinematic characteristics, Navigation, Path development

Introduction

Mobile robots are becoming increasingly widespread in the modern world. They are used in many areas of human life. By purpose, we can distinguish next types of robots: transport robot, household robot, combat robot, zoomorphic robot, medical robot, pharmacy robot, microrobot, nanorobot, personal robot, social robot etc. [1]-[10].

To move around open areas, a wheeled or tracked propulsion device is most often used. Walking systems are used less frequently. For uneven surfaces, hybrid structures are created that combine wheeled or tracked travel with complex kinematics of wheel movement.

Indoors, at industrial facilities, robots move along monorails, along floor tracks, etc. To move along inclined or vertical planes, through pipes, systems similar to “walking” structures, but with vacuum suction cups, are used. Robots designed to inspect high-voltage power lines have a wheeled chassis in their upper part that moves along the wires. Robots are also known that use the principles of movement of living organisms - that is, zoomorphic robots and insectomorphic ones.

It should be noted that when creating any mobile robot, it is not enough to simply assemble the device. It is also necessary to develop the principles of its movement. Taking these principles into account, the next step is to develop a system, as well as a control program for this mobile robot [11]-[17].

Moreover, such a program must take into account the design features of the robot itself, as well as the type of room/open area where it will be used.

Thus, after determining the components of the designed device, it is necessary to develop its kinematic model for the further creation of a control system for this robot. For a kinematic model, it is first necessary to determine the main variables/parameters. This article will discuss the definition of these variables/parameters.

Related works

To create a control system for a mobile robot, many researchers first create a kinematic model of the robot being developed. Let's look at several recent of these works.

In article [18] authors present a new variable curvature kinematic modeling approach for soft continuum robots by taking the external forces into consideration. They achieve both accurate motion simulation and feed forward control of the robot.

The paper [19] explain the application of kinematic modeling of four wheel omni directional robots as track tracking controllers and microcontroller based movement control.

In [20] scientists consider the kinematics of the robot in active and passive modes composed of position and posture in order to develop a mathematical model for an effective design and control of the locomotion system.

Lafmejani, A. S. and co-authors [21] describe the kinematics modeling and control of hyper-redundant robots inspired by the octopus arm. They propose their solution for the inverse kinematics problem.

Paper [22] present a framework for estimating the kinematic model and configuration of previously unseen articulated objects, conditioned upon object type, from as little as a single observation.

Researchers in [23] propose their kinematic model with velocity compensation of the combined mobile system is created, aimed to provide a theoretical kinematic basis for accurate motion control.

In [24] a forward kinematic model of a wire-driven surgical robot arm is presented with an articulated joint structure and path generation algorithms with solutions of inverse kinematics.

Rabiee, S., & Biswas, J. propose a new kinematic model capable of slip prediction for skid-steer wheeled mobile robots [25].

The paper [26] by Toquica, J. S., & et al. proposes two solutions for the inverse kinematic problem of an industrial parallel robot: a closed analytical form and a Deep Learning approximation model based on three different networks.

Authors of the paper [27] establish the kinematics of cable-driven parallel robots considering pulley mechanisms and further develop the error model as well as the kinematic calibration method for cable-driven parallel robots.

In [28] researchers propose a method to learn the kinematic model of a redundant surgical robot and control it to perform surgical tasks both autonomously and in teleoperation.

Authors in [29] note, that kinematic models provided by robot manufacturers are valid only under ideal conditions and it is necessary to account for the manufacturing errors, particularly the joint offsets introduced during the assembling stages, which is identified as the underlying problem for position inaccuracy in more than 90% of the situations. They minimize the kinematic mismatch between the ideal and the factory-calibrated robot models for a Kinova Gen3 ultra-lightweight robot by compensating for the joint zero position error and the possible variations in the link lengths.

So, we see that many developers are building kinematic models. It should also be noted that the problem of solving kinematic problems, both direct and inverse, is the subject of research by many scientists.

Mobile robot kinematic model parameters determination

We need to understand that to build a kinematic model, you first need to determine at least the main characteristics of the designed mobile robot. We must also take into account that the more characteristics we take into account, the more accurate the kinematic model will be.

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However, an excessive number of such characteristics can lead to unnecessary, that is, excessive complication of the kinematic model. This number of characteristics may have virtually no effect on the control accuracy of a mobile robot.

Thus, when choosing characteristics for compiling a kinematic model of a robot, it is necessary to analyze their feasibility and the degree of influence on the accuracy of movement.

Within these studies framework, let us assume that the mobile robot moves along a known and bounded two-dimensional plane, which is discretized in the form of a grid. Each grid point corresponds to a small region of real space. If the space in this field is completely traversable, its state is considered free, otherwise it is considered occupied. The design of the wheeled mobile robot is standard and consists of two drive wheels on the left and right sides, the rationale for choosing this design is its availability and wide distribution, which will simplify the modeling process in the future. The general view of the selected design of the mobile robot is shown in Figure 1.



Figure 1: Mini Round Chassis 2WD DIY Smart Car

Let us represent the selected mobile robot in the XY coordinate plane and spread the base points for developing a kinematic model. Figure 2 presents a kinematic model of a 2WD mobile robot.

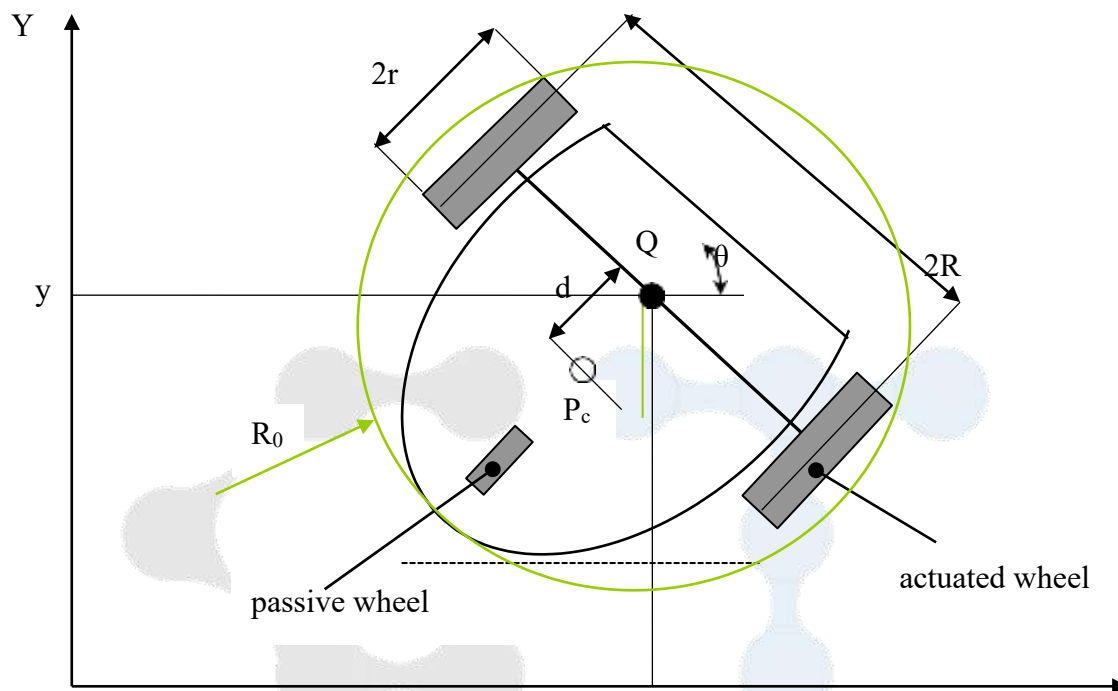


Figure 2: 2WD Mobile Robot Kinematic Model

Let us denote by P_c the center of mass of the mobile robot, which is an important part of robot design and control. The center of mass is the point where the entire mass of the robot can be considered concentrated;

Q is the midpoint of two actuated wheels, accounting for the midpoint of the two wheels is an important aspect when creating a kinematic model of a mobile robot to ensure its stable and controllable movement, as well as to develop efficient control and navigation algorithms;

d is the distance between P_c and Q , which is affected by the change in wheel speeds affects the movement of the robot center of mass. This is important for the development of motion control algorithms that allow the robot to move in the desired direction and perform the given maneuvers;

R is half the width of the wheel driven from left to right. Considering the half-width of the left-to-right (or right-to-left) driven wheel in the kinematic model of the mobile robot is an important aspect in this model development. This is done to take into account the characteristics of a robot with a differential drive or other systems where each wheel can be controlled independently;

r is the radius of the wheel. Taking into account the wheel radius in the kinematic model of a mobile robot is an important aspect, it provides an opportunity to account for the dimensions and features of the robot's wheels, which significantly affect its movement and maneuverability;

R_0 is the radius of the smallest circle with center Q covering the entire robot. This radius, also known as the turning radius or maneuvering radius, determines how close the mobile robot can approach an obstacle or turn in a confined space.

We will also define three variables related to the coordinates of the robot:

θ – the heading angle of the mobile robot, since the heading angle is the direction in which the robot is moving relative to its initial orientation. This angle is a key variable when describing the motion and controlling the robot

x та y – coordinates Q , necessary for an accurate description of the position and movement of the robot in space. These variables are used in the kinematic model of the robot and for solving navigation and control problems.

Within the framework of these studies, we will set such conditions that the wheels do not slip.

In the future, it is proposed to develop a kinematic model of the robot movement, which will take into account the following features when constructing the route of movement of the mobile robot:

- movement accuracy, it will be possible to more accurately predict the movement of the robot in response to certain movement commands or control signals. This will allow for more accurate consideration of the physical limitations of the robot, such as dynamic limits on acceleration and maximum speeds. When planning the path of the robot, these constraints can be taken into account to ensure safe and stable movement;

- the dynamic model will allow you to take into account friction and resistance forces that can affect the movement of the robot. This is especially important when planning a path on an uneven surface or in drag conditions such as sand or mud. Taking these factors into account makes it possible to more realistically design the path and prevent possible problems related to friction;

- collision avoidance: the proposed model allows predicting how the robot will move near obstacles. This allows the robot to avoid collisions with surrounding objects, taking into account both the robot's geometric parameters and its dynamic characteristics. Path planning based on this information allows the work to avoid dangerous situations;

- optimization of energy consumption by determining the dynamic characteristics of the robot, it is possible to optimize its movement from the point of view of energy consumption. This is important for battery-powered mobile robots because optimized motion can extend battery life.

Thus, the development of a full dynamic model will allow more accurate and efficient development of route construction algorithms taking into account its physical capabilities and limitations.

Conclusion

In the modern world, the use of robots is becoming more and more global. New devices are constantly being developed and invented, as well as efforts to develop them.

However, it is not enough to just develop the design itself. The robot must be controlled. Accordingly, the task of controlling the robot becomes mandatory, which also includes controlling its movement.

To solve these problems, control systems are developed and control programs are created.

The created program must ensure accurate movement of the mobile robot. To solve this problem, it is first necessary to create a kinematic model of the control device. Such a model must take into account all the necessary parameters and characteristics. However, the principle of expediency should be adhered to. That is, the characteristics taken into account in the kinematic model must be necessary and sufficient to control the movement of a mobile robot. But they should

not be redundant. That is, you need to take into account only those that affect the movement of the robot.

This paper presents the selection of parameters for the subsequent creation of a kinematic model. In the future, it is planned to develop a kinematic model, as well as a control system based on it.

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Annotation: The main science of toponymy stages of development, emergence of scientific toponymy as a science and contributed to the development of this science by Uzbek scientists scientifically based on contributions.

Key words: appellative, proper noun, toponym, toponyms, phraseological units, languages, linguistics, dictionaries;

General linguistics is a branch of linguistics that, in contrast to special linguistics, studies language as a human phenomenon in general, an integral part of a person. The main task of general linguistics is to identify and illuminate the most common features of world languages. This task is to generalize observations about some languages and language groups; it is solved by identifying the most general, universal principles of language construction, semantics and syntax of natural and machine languages, as well as phonetics (only in natural languages). According to the source of its study, private linguistics studies the characteristics of a certain language (Russian language), a group or family of languages (Romanistics, Turkic studies), languages belonging to a region or typological group (Balkan studies, Caucasian studies).

General linguistics empirically identifies the common (or statistically dominant) features of all languages using typology; and by studying the general (important for people belonging to any community) laws in the operation of the language, it can also be determined deductively. General linguistics also distinguishes linguistic departments depending on the division of the language into levels and depending on the tendency of a particular department to one or another aspect of language sign (word) and text (thought, sentence) (fluid. general phonetics, general morphology).

Within the scope of general linguistics, the nature and essence of language, language and thinking, language and speech, the structural structure of language, understanding the language system, the emergence and development of language, the emergence of writing, morphological (typological) and genealogical classification of languages, the method of scientific study of languages, language issues such as form and content are explored. Among them, language and speech, the method of language testing, problems of form and content in language are related to the name of the subject "General Linguistics", and the related problems are related to the name of the subject "Introduction to Linguistics". In the introduction to linguistics, which is considered a component of general linguistics, basic information about language is given, the basic scientific terms and concepts used in linguistics are introduced, and a theoretical basis is given for the development of the main parts of linguistics and the issues studied in special linguistics. According to the above, it is more correct to understand the term "General Linguistics" in broad and narrow senses. General linguistics also studies the relationship of linguistics to other social sciences (eg, literary studies, philosophy, history, archeology, ethnology, psychology) and natural sciences, especially biology and mathematics.

Toponyms, or place names, can be useful in foreign language teaching as they provide real-world examples of language use and cultural context. Teachers can use toponyms to teach students about the geography, history, and culture of the target language's speakers. Additionally, toponyms can be used to practice vocabulary related to places, landmarks, and geographical features. Technology can also be used to enhance the study of toponyms, such as through interactive maps,

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virtual tours, and multimedia resources that provide students with visual and auditory examples of place names in context. Overall, incorporating toponyms into foreign language teaching can help students develop a deeper understanding of the language and its cultural significance.

Phraseology as a complex area of the linguistic system is a developing field of research and has attracted interest from many sides. The linguistic attention has been paid to the semantic, syntactic and textual properties of phraseological units, to different approaches of their synchronic and diachronic description, and to cultural specificity. The term 'phraseology' originated in Russian studies which developed from the late 1940's to the 1960's (Cowie 1998). In linguistics, the term 'phraseology' describes the context in which a word is used. This often includes idioms, phrasal verbs, and proverbs. "Phraseology is a fuzzy part of language. Although most of us would agree that it embraces the conventional rather than the productive or rule-governed side of language, involving various kinds of composite units and 'pre-patterned' expression such as idioms, fixed phrases, and collocations, we find it difficult to delimit the area and classify the different types involved". Linguists have provided various definitions of phraseological units and various criteria to classify them. My working definition is that proposed by Gläser: "A 'phraseological unit' is a lexicalized, reproducible, billexemic or polylexemic word group in common use, which has relative syntactic and semantic stability, may be idiomatized, may carry connotations, and may have an emphatic or intensifying function in a text" (Gläser 1998). To put in other terms, phraseological units can be characterized by certain specific features, which distinguish them from free word combinations. When defining a phraseological unit, we can most often mention the following qualities: figurativeness, expressiveness, multi-word character, collocating nature, transformational defectiveness and idiomatic character.

Naming an entity is one of the basic speech acts. The act of naming serves to illuminate the entities that play a role in people's daily life. Proper names is the object of onomastics. It is generally agreed among linguists that proper names are a universal linguistic category. Proper names constitute a system which varies across cultures and provide a reflection of the society of which they are the expression. They are linguistic items fulfilling a referential function. The proper names in phraseological units are of great importance in communication, where they are signs of cultural, linguistic, geographical, ethnic and social identity. The present paper is concerned with proper names in English phraseology. The aim of the present paper is to explore the linguistic-cultural aspects of phraseological units containing personal and place names. The material was selected from Oxford Dictionary of Phrase, Saying and Quotation. 270 examples have been drawn for the present analysis (125 examples with personal names in phraseological units and 145 examples with place names in phraseological units). The research proved that the personal names involved in the phraseological expressions indicate the following types of sources: the Bible, mythological figures, figures of Greek and Roman Antiquity, popular culture, real people, and literary texts. The place 328 Solveiga Sušinskienė names involved in the phraseological expressions indicate the following types of sources: places in UK, eastern countries related to the British colonial past, places related to classical heritage, places on the Continent. To sum up, the personal and place names involved in phraseology are historically, socially or culturally prominent in British culture.

In linguistics, toponyms refer to the names of places, such as cities, countries, mountains, rivers, and other geographical features. Toponyms are important in the study of language and

geography as they provide valuable insights into the history, culture, and linguistic characteristics of a particular region.

Linguists often analyze toponyms to understand the origins and meanings of place names, as well as the influence of different languages and cultures on the naming of geographical locations. Studying toponyms can also reveal patterns of language distribution and migration, as well as the impact of colonization and historical events on the naming of places.

Toponyms can also be used to study dialectal variations within a language, as different regions may have their own unique names for the same place. Additionally, toponyms can provide linguistic evidence for understanding the development and evolution of languages over time.

Overall, toponyms are a valuable resource for linguists and researchers interested in exploring the connections between language, culture, and geography. They can provide rich insights into the linguistic diversity and historical development of a particular area, and help to shed light on the complex relationship between language and place.

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A RETROSPECTIVE ANALYSIS OF INFECTIOUS BOWEL DISEASE
INFORMATION

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ABSTRACT: In the bacteriological laboratory of the Children's Infectious Diseases Hospital, we presented the results of the bacteriological method for the diagnosis of infectious intestinal diseases, and for the bacteriological diagnosis of patients suspected of infectious intestinal diseases, we used the methodological criteria compiled by Student and Fisher in the modification of Ermoleva in the statistical processing of the obtained results.

Key words: colienteritis, salmonellosis, typhimurium, Escherichia coli, GPB, GPA, enteritidis.

The results of the bacteriological method in the diagnosis of infectious intestinal diseases in the bacteriological laboratory of the Children's Infectious Diseases Hospital of Termiz are presented in the implementation of the goals and tasks set before us. For this, 173 patients were examined for infectious intestinal diseases in 2022-2023, and 122 of them were diagnosed, of which 67% were choleenteritis and 33% were salmonellosis. In salmonellosis, the etiological factor was 9% S enteritidis and 27% S typhimurium. Therefore, 79 E.coli (67%) and 30 S. typhimurium (27%) strains were obtained in our research.

BACTERIOLOGICAL METHODS: Stools of patients with suspected infectious intestinal diseases were taken for bacteriological diagnosis. Bacteriological diagnosis of colienteritis: the patient's feces can be taken and cultured on GPA, GPB, Endo, Clark, Levin media. Medium pH 7.2-7.6, growth temperature 37°C, growth range 14-42°C. It is placed in the thermostat for 18-24 hours. Endo medium is a differential diagnostic medium for E.coli. Because only E.coli breaks down lactose among intestinal bacteria, lactose, Andrede's reagent is added to this medium. When E.coli breaks down lactose, the acid released breaks the bond in Andrede's reagent, resulting in fuchsin being released freely and staining the colony its own color. This is why E.coli forms a shiny, red, metallic colony on Endo's medium. In other environments, E.coli produces colorless S colonies. Therefore, the red metallic shiny S colonies were suspected to be E.coli, removed from this colony and re-inoculated into Russell's medium in order to isolate a pure culture, and placed in a thermostat at 37°C for 18-24 hours. . A smear was prepared from the culture grown in Russell's medium and checked for purity by Gram staining. Gram-negative smear (red-pink color), the appearance of rods of the same shape was taken as a pure culture. Then the isolated pure culture was identified according to biochemical, antigenicity, phagotyping, sensitivity to antibiotics in order to determine the type.

To determine the biochemical characteristics: 1. Planted in Hiss medium (colored row) and kept in a thermostat for 1 day. Gases break down carbohydrates in the environment to form acid and gas. 2. It was planted in GPB and placed in a thermostat for 1 day to determine its protein-degrading properties. Decomposes protein to form H₂S and indole. Based on these properties, it was confirmed as an E. coli strain.

Determination of serogroup: we determined the antigen structure and serogroups of the isolated strain with special O and N diagnostic sera.

Bacteriological diagnosis of salmonellosis: the patient's stool is cultured on Endo, Ploskirev media. The pH of the environment is 7.2-7.6. It was placed in a thermostat at 37°C for 18-24 hours, we marked the suspicious one (smooth, colorless S-colony) from the grown kaolinia, planted it in Ressel's medium and grew it again in a thermostat at 37°C for 18-24 hours. When we made a smear from the growing culture, stained it with the gram method, and looked at it under a microscope, the appearance of gram-negative small rod-shaped microorganisms confirmed the isolation of a pure culture of salmonella. The separated pure culture was identified according to biochemical, antigenicity, phagotyping, sensitivity to antibiotics in order to determine the type.

Determining the biochemical properties of Salmonella: 1. When we test the enzymatic properties of isolated pure culture by planting it in Giss medium, they break down carbohydrates to acid, and some types produce acid and gas. 2. Inoculated on GPB, no indole was formed and some produced H₂S when the protein degradation properties were studied. In order to determine the serogroup, we performed an agglutination reaction with a pure culture isolated using special O and N diagnosticum sera. We determined the type of salmonella by comparing the results of all tests with the results of standard strains.

Disc diffusion method was used to determine antibiotic sensitivity of 79 pathogenic E. coli and 30 S. typhimurium strains isolated from patients. The results were determined according to the recommendations (Methodological manual, MUK 4.2 1890-04; Moscow, 2004) based on the diameter (mm) of the growth zone of each strain, corresponding to different antibiotics. In order to determine the sensitivity to antibiotics, nutrient media were selected taking into account the requirements of E. coli and S. typhimurium strains (GPA-meat peptone agar, Endo medium).

To determine the sensitivity of isolated strains to antibiotics by the "Disc diffusion" method, 10 ml of dissolved agar specific for each microorganism was placed in a sterile Petri dish. After solidification of the agar in the Petri dish, the supernatant pure culture was inoculated using a coil as a snake trace. Then, with sterile tweezers, paper discs soaked with antibiotics were placed on the agar surface at a distance of 3-4 cm from each other (5 discs should be placed in each Petri dish). Cultures are grown and Petri dishes with paper discs soaked in antibiotics are placed in a thermostat at 37°C for 24 hours. The result was determined by measuring the diameter of the no-growth zone (the distance from the border of the antibiotic-soaked paper disc to the area of growth) around each antibiotic-soaked paper disc using a ruler. The results were based on the guidelines of the WHO (Methodological manual, MUK 4.2 1890-04; Moscow, 2004), that is, if the distance is up to 10 mm - the microbe is not sensitive to this drug (antibiotic), the distance is more than 10 mm in diameter If it is up to 20 mm - the microbe is sensitive to this antibiotic, if it is 20 mm or more - the studied microbe is considered to be highly sensitive to this antibiotic.

30 each of antibiotic-susceptible and resistant strains of pathogenic Escherichia coli serotonin were taken, streaked on nutrient agar in Petri dishes, and then the corresponding bacteriophage was inoculated. After 6-8 and 18-20 hours of incubation in a 37°C thermostat, the

results were recorded according to the presence or absence of lysis of the cultures where the bacteriophage was inoculated.

STATISTICAL METHODS: In the statistical processing of the obtained results, we used the methodological criteria compiled by Student and Fisher in Ermoleva's modification. Arithmetic average quantity (M), average quantity error (m), reliability criterion (t) and correlation coefficient were determined in it. The correlation coefficient was determined by Spearman's method (quadratic).

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Abstract. *It is shown any hyperfinite factor has an involutive *-antiautomorphism. It is proved that a real subfactor is irreducible if and only if its enveloping factor is irreducible. Using constructed examples in the complex case, as well as using an involutive *-antiautomorphism of a W^* -algebra, examples of irreducible hyperfinite real subfactors with index larger than 4 are constructed.*

Key words. *Hyperfinite factor, W^* -algebra, irreducible hyperfinite real subfactors, complex Hilbert space, commutant, coupling constant, involutive *-antiautomorphism, principal graphs.*

1. INTRODUCTION

In 1930's von Neumann and Murray introduced the notion of coupling constant for finite factors. In 1983 V.Jones suggested a new approach to this notion, defined the notion of index for type II_1 factors, and proved a surprising theorem on values of the index for subfactors (see [1]). He also introduced a very important technique in the proof of this theorem: the towers of algebras. Since then this theory has become a focus of many fields in mathematics and physics. In [2], H.Kosaki extended the notion of the index to an arbitrary (normal faithful) expectation from a factor onto a subfactor. While Jones' definition of the index is based on the coupling constant, Kosaki's definition of the index of an expectation relies on the notion of spatial derivatives due to A.Connes [3] as well as the theory of operator-value weights due to U.Haagerup [4]. In [2] and [5] it was shown that many fundamental properties of the Jones index in the type II_1 case can be extended to the general setting. At the present time, the theory of index thanks to works by V.Jones, P.Loi, R.Longo, H.Kosaki and other mathematicians is deeply developed and has many applications in the theory of operator algebras and physics.

In parallel with the theory of an index of complex subfactors the theory of an index of real subfactors has also been intensively developed. In paper [6] real analogues of Jones' theory of index is considered. In particular, the notions of the real coupling constant and the index for finite real factors was introduced and investigated.

In the present paper the study of the notion of index of real factors are continued. It is shown that any hyperfinite factor has an involutive *-antiautomorphism. It is proved that a real subfactor is irreducible if and only if its enveloping factor is irreducible. Using examples constructed in the complex case, as well as using an involutive *-antiautomorphism of W^* -algebra, series of examples of irreducible hyperfinite real subfactors with index larger than 4 will be constructed in the work.

2. PRELIMINARIES

Let H be a complex Hilbert space, $B(H)$ denote the algebra of all bounded linear operators on H . The *weak (operator) topology* on $B(H)$ is the locally convex topology, generated by the seminorm of the form: $\rho(a) = |(\xi, a\eta)|$, $\xi, \eta \in H$, $a \in B(H)$. W^* -algebra is a weakly closed complex *-algebra of operators on a Hilbert space H containing the identity operator $\mathbf{1}$. Recall that W^* -algebras are also called *von Neumann algebras*. The *center* $Z(M)$ of a W^* -algebra M is the set of elements of M , commuting with each element from M . Elements of $Z(M)$ are called

central elements. A W^* -algebra M is called *factor*, if $Z(M)$ consists of the complex multiples of $\mathbf{1}$, i.e. $Z(M) = \{\lambda\mathbf{1}, \lambda \in \mathbb{C}\}$. We say that a W^* -algebra M is *injective* if there exists a projection P from $B(H)$ onto M such that $\|P\| = \mathbf{1}$ and $P(\mathbf{1}) = \mathbf{1}$. This is equivalent to the condition that M is *hyperfinite*, i.e., there exists an increasing sequence $\{M_n\}$ of matrix subalgebras of the algebra M containing $\mathbf{1}$ and such that the union $\cup_n M_n$ is weakly dense in M . A linear mapping $\alpha : M \rightarrow M$ is called a **-automorphism* (respectively a **-antiautomorphism*) if $\alpha(x^*) = \alpha(x)^*$ and $\alpha(xy) = \alpha(x)\alpha(y)$ (respectively $\alpha(xy) = \alpha(y)\alpha(x)$), for all $x, y \in M$. A mapping α is called *involutive* if $\alpha^2 = id$. A **-automorphism* α is called *inner* if there exists a unitary u in M , such that $\alpha(x) = Adu(x) = uxu^*$, for all $x \in M$.

A real **-subalgebra* $R \subset B(H)$ with $\mathbf{1}$ is called a *real W^* -algebra*, if it is weakly closed and $R \cap iR = \{0\}$. The smallest (complex) W^* -algebra M containing R coincides with its complexification $R + iR$, i.e. $M = R + iR$. It is known that R generates a natural involutive (i.e. of order 2) **-antiautomorphism* α_R of M , namely $\alpha_R(x + iy) = x^* + iy^*$, where $x + iy \in M$, $x, y \in R$. In this case $R = \{x \in M : \alpha_R(x) = x^*\}$. Conversely, given a W^* -algebra M and any involutive **-antiautomorphism* α on M , the set $(M, \alpha) = \{a \in M : \alpha(a) = a^*\}$ is a real W^* -algebra (see [7], [8], [9]).

3. THE INDEX OF SUBFACTORS

Let $M (\subset B(H))$ be a finite factor and let τ be the unique faithful normal tracial state of M . If α is an involutive **-antiautomorphism* of M , then it is clear that τ is automatically α -invariant.

Denote by $L^2(M)$ the completion of M with respect to the norm $\|x\|_2 = \tau(x^*x)^{\frac{1}{2}}$. Similarly by $L^2(M, \alpha)$ we denote the completion of the real factor (M, α) . Then we have $L^2(M, \alpha) + iL^2(M, \alpha) = L^2(M)$ (see [6]).

If $M (\subset B(H))$ is a finite factor with the finite *commutant* $M' := \{x \in B(H) : xy = yx, \forall y \in M\}$, the *coupling constant* $dim_M(H)$ of M is defined as $tr_M(E_\xi^{M'}) / tr_{M'}(E_\xi^M)$, where ξ is a non-zero vector in H . ξ is independent on ξ . Similarly defined the notation of coupling constant for real finite factors. One has the following relations between $dim_{(M, \alpha)}(H_r)$, $dim_{(M, \alpha)}(H)$ and $dim_M(H)$

$$dim_M(H) = dim_{(M, \alpha)}(H_r) = dim_{(M, \alpha)}(H) \text{ (see [6]).}$$

Now, consider a subfactor $N \subset M$ and let α be an involutive **-antiautomorphism* of M with $\alpha(N) \subset N$. The index of N in M , denoted by $[M : N]$ is defined as $dim_N(L^2(M))$, i.e. this is the coupling constant of N when regarded in the standard representation of M . Similarly, for real factors $R = (M, \alpha)$ and $Q = (N, \alpha)$, the index of Q in R , denoted by $[R : Q]$ or by $[(M, \alpha) : (N, \alpha)]$, is defined as $dim_Q(L^2(R))$. This is also the coupling constant of Q when

regarded in the standard representation of R . Between real and complex indices there is the following relation (see [6]).

$$[(M, \alpha) : (N, \alpha)] = [M, N] \quad \text{i.e.} \quad [R : Q] = [R + iR : Q + iQ]. \quad (1)$$

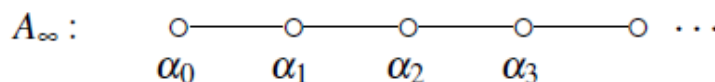
The first problem V.Jones considered in [1] was to characterize the set of all the possible values the index may take: he proved that $[M : N]$ can only take the values:

$$\left\{ 4 \cos^2 \frac{\pi}{n} : n \geq 3 \right\} \cup \{4; \infty\}$$

and that each of these values can appear.

4. MAIN RESULTS

The most interesting case of subfactors are those for which the relative commutant $N' \cap M$ is reduced to the scalars $\mathbb{C}1$. V.Jones proved in [1] that small values of indices $[M : N] < 4$ impose the condition $N' \cap M = \mathbb{C}$ (such subfactors are called *irreducible*). However, his examples of subfactors of index larger than 4 do not satisfy this condition (see. [1]), in fact they are of a certain trivial form. The problem of characterizing the values $[M : N] > 4$ in the case $N' \cap M = \mathbb{C}$ remained open. First examples of hyperfinite factors $N \subset M$ with $N' \cap M = \mathbb{C}$ and index larger than 4 were given in [10]. Namely, it was constructed a series of irreducible hyperfinite subfactors of II_1 factor with lowest index: $3 + \sqrt{3} = 4.73205... .$ U.Haagerup in [11] showed a list of candidates of (dual) principal graphs for the index range $(4, 3 + \sqrt{3}]$ by complicated and subtle combinatorial arguments. His work, in particular, implies that if the index value is between 4 and $(5 + \sqrt{13}) / 2 = 4.302...$, then the principal graph must be A_∞ .



Haagerup-Schou and Ocneanu have constructed many subfactors of the hyperfinite II_1 factors with trivial relative commutants with indices in this range using bi-unitary connections on finite graphs. In this way, the Jones index we get is the square of the Perron Frobenius eigenvalue of the graphs we use. Then a result in the graph theory implies that the smallest index value above four we can construct in this way is 4.026..., even if we allow infinite graphs. Further, examples of irreducible hyperfinite subfactors with index larger than 4 were also obtained in the papers of H.Yoshida (see also [12], [13]).

Teorema 1. Any hyperfinite factor has an involutive *-antiautomorphism.

Proof. Let N be a hyperfinite factor and let R be a hyperfinite real factor. By [8] an algebra $M = R + iR$ is also hyperfinite factor and the map $\alpha : M \rightarrow M$ defined as $\alpha(a + ib) = a^* + ib^*$ ($a, b \in R$) is involutive *-antiautomorphism of M , generating R , i.e. $R = (M, \alpha) = \{x \in M : \alpha(x) = x^*\}$. Since all hyperfinite factors of the same type are isomorphic between them, there exists an isomorphism $\theta : N \rightarrow M$. Then the map $\beta : N \rightarrow N$ defined as $\beta = \theta^{-1} \circ \alpha \circ \theta$ is involutive *-antiautomorphism of N . The theorem is proved.

Theorem 2. There is series of irreducible hyperfinite real factors with index larger than 4, in particular, with index values in the intervals $(4, 3 + \sqrt{3}]$ and $(4, \frac{5 + \sqrt{13}}{2}]$.

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**STUDY OF THE FUNCTIONAL PROPERTIES OF PROTEINS FROM WHEAT
BRAN IN BAKERY PRODUCTS.**

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Abstract: In order to create a wide range of food products with controlled composition and nutritional properties for the production of protein products, it is advisable to use raw materials that actually exist in the country - wheat bran.

In terms of water-binding capacity, bran protein flour is close to full-fat soy flour and surpasses all other protein products in this indicator (1.3-5.3 times). Protein products from bran have a high fat-binding ability to form an "oil in water" emulsion. Along with the ability to change the surface tension at the oil-water interface, bran protein products had a similar property in relation to the gas-water phases.

Keywords: proteins, wheat bran, protein enrichment, functional properties, quality, nutritional value.

Assessment of the quality of protein products of high biological value and multifunctional purposes obtained from wheat bran.

The optimal technological regimes for protein isolation and the rational type of grain raw materials have been determined. They were total flow bran obtained from various technological process systems and providing a protein yield of 47-49%, as well as a granulometric fraction of total bran with a particle size of 196-670 microns, providing a protein yield of about 6% of the total protein content in the raw material[1,2,3,4].

Protein products from bran have a true digestibility value relative to casein equal to 9%, and an average value of biological value based on "growth characteristics" is 55.5% [5,6]. They contain more essential amino acids than the original raw material, and protein flour from the granulometric fraction (bran product) is richer than protein flour from total bran due to the presence of deficient lysine, threonine, as well as valine and leucine [7,8].

Peculiarities.

- protein products from wheat bran have biological value;
- the addition of protein flour improves the quality of food raw materials.

Proteins are one of the main and essential components of healthy and nutritious food. However, an analysis of the structure of protein nutrition in recent years shows that there is a shortage of dietary protein in the country and its deficiency is likely to persist in the coming decades [9,10,11,12].

To solve the problem of providing the population with cheap and high-quality protein, the rational use of raw materials of plant origin and the creation of food protein products based on them will become increasingly important[13,14]. All over the world, wheat, along with soybeans, is widely used for these purposes due to its large resources, the historically established tradition of eating this crop and the absence of anti-nutrients [15,16,17].

In order to create a wide range of food products with controlled composition and nutritional properties for the production of protein products, it is advisable to use raw materials that actually exist in the country - wheat bran. The share of protein in bran accounts for 25.6-29.2% of its total amount in the raw material [1,2,18,19,20].

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Assessment of the quality of protein products of high biological value and multifunctional purposes obtained from wheat bran, the use of these products in the production of products for mass, preventive and dietary purposes [21,22,23].

As a result of comprehensive research [24,25], optimal technological regimes for protein isolation and a rational type of grain raw material were determined. They were total flow bran obtained from various technological process systems and providing a protein yield of 47-49%, as well as a granulometric fraction of total bran with a particle size of 196-670 microns, providing a protein yield of about 60% of the total protein content in the raw material [1,3,26,27,28].

In accordance with this scheme you can receive:

-protein flour with a protein content of 45% or protein concentrate containing 60% protein;

-food starch-protein additive for use in the production of sweets, sausages and extrudates;

Studies have shown that protein products from bran have a true digestibility value relative to casein equal to 94%, and an average biological value for "growth characteristics" of 55.5%. They contain more essential amino acids than the original raw material, and protein flour from the granulometric fraction - bran product (BMOP) - is richer than protein flour from total bran (BMOO) in deficient lysine, threonine, as well as valine and leucine [29,30]. The limiting amino acid of both bran protein products is isoleucine, while, for example, in dry gluten it is lysine, and in soybean isolate - sulfur-containing amino acids (Table 1). It is important to note that protein products made from bran have higher levels of all amino acids without exception than dry wheat gluten, and protein flour from bran is higher than concentrate from the same bran.

Table 1. Amino acid score of protein products, %*

Amino acids	Are common	BMOO	Otrubnoy product	BMOP	Common bran concentrate	Dry gluten ¹	Soy isolate ²
Valin	89	96	93	100	97	86	100
Leucine	93	120	101	127	111	98	117
Isoleucine	79	93	79	89	97	105	122
Threonine	90	104	98	115	100	60	95
Lysine	88	113	94	128	103	29	114
Sulfur-containing	137	154	140	142	128	97	77
Aromatic	121	156	128	152	153	128	142
Limiting			Isoleucine			Lysine	Methionine

* The calculation is based on the 1973 FAO/WHO recommendations and - calculated data: - chemical

composition of food products. Book 2. Ed. I.M. Skurikhin and M.M. Volgarev, 1987.

² - advertising brochure of the company "Protein Technologies International"

Protein products contain unsaturated fatty acids (85.9%), of which linoleic acid accounts for 72.9%, linolenic acid 6.7% and oleic acid 20.4%.

The carbohydrate part, along with starch (25-53%), is represented by dextrans (8.5-10.5%) and maltose (2.4-3.0%) [2,3,31,32,33]. The products also contain soluble (0.33%) and

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insoluble (2.9%) fiber. In terms of the content of vitamins B₂ and PP, as well as the amount of potassium, calcium, iron, sodium, protein flour from wheat bran is superior to the original bran, and in terms of the content of vitamins B₆, E and folic acid it differs little from them (Table 2)

Table 2. Content of vitamins and minerals in bran protein products

Indicators	Flour	Concentrate	Bran
Vitamins, mg/100 g:			
IN:	0.82	1.08	1.14
B ₂	0.47	0.53	0.24
At 6	0.58	-	0.88
B ₉ (folacin)	0.12	0.11	0.12
PP (niacin)	22.7	17.73	11.7
E (tocopherol)	32.3	33.1	34.5
Minerals, mg/100 g:			
sodium	152	90.5	53
potassium	1477	322	1312
calcium	323	85	94
magnesium	184	87	421
phosphorus	420	380	900
iron	28	8	12

An assessment of protein products, including sanitary and hygienic studies, showed that the samples met the established requirements for the content of heavy metals (nickel, chromium, lead, cadmium, arsenic, mercury, zinc and copper), if the starting raw materials did not exceed the MPC values. No aflatoxin found in protein products In_p zearalenone and pesticides. The amount of deoxynivalenol was within normal limits [34,35].

The theoretical justification for the use of protein products from bran in food production included the study of functional properties and their dependence on various technological factors and recipe components. From the table 3 shows that the new bran products have all types of functional properties with the exception of gelation.

Protein flour from common bran has a lower solubility than animal proteins, but higher than wheat gluten or, for example, safflower meal isolate .

Table 3. Functional properties of protein products

Product	Solubility, %	VSS, y/y	ZhSS, y/y	ZhES, %	Emulsion stability, %	NOSE, %	SP, %
Bran protein meal (BPF)	16.0	3.9	4.2	8.9	97	99	83
Protein flour from the rub fraction (BMOP)	52.7	4.3	2.7	72	74	100	52
Bran protein concentrate	12.0	2.1	1.0	55	60	69	15
Non-defatted soy flour	72.1	4.7	2.1	46	52	27	38
Soy isolate *	38.0	-	-	74	65	113	77
Wheat gluten	3.1	1.2	1.7	57	61	65	43
isolate *	11.2	0.8	3.6	12	-	15	50
Egg powder	86.2	2.4	0.4	12	48	15	50

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Powdered milk	78.4	1.8	1.9	32	22	10	0
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* Literature data

In terms of water-binding capacity (WBC), bran protein flour is close to full-fat soy flour and surpasses all other protein products in this indicator (1.3-5.3 times). Protein products from bran have a high fat-binding ability (FBC), the ability to form an oil-in-water emulsion (OWE) and stabilize the latter (stabilized emulsion - SE), as evidenced by the lack of coalescence and destruction of this emulsion when heated to 80° WITH. Along with the ability to change surface tension at the oil-water interface, protein products from bran had a similar property in relation to the gas-water phases . In terms of foaming ability (POC), protein flour, for example, was inferior to soybean isolate, and in terms of foam stability (SP) it was superior to all other protein products. It is important to note that traditional animal protein products had lower functional property values than new products obtained from by-products of wheat grain processing [37,38].

The dependence of the functional properties of protein products on technological factors and recipe components was also considered as a way to regulate these properties in order to maximize the potential for the production of high-quality food products with a strictly defined chemical composition. At the same time, both separate and combined effects of the above factors on the behavior of proteins in food systems and the quality of finished products using them were allowed [1,4,5,39].

The data obtained made it possible to expediently use protein products from wheat bran (Table 4).

Table 4. Functional properties and uses of wheat bran protein products

Functional properties	Method of action	Products that use the property
Solubility	Protein solubility depending on pH	Bakery products, flour confectionery products, extrudates , food concentrates
Fat emulsifying ability	Emulsion formation and stabilization	Sausage, flour confectionery, bakery products; mayonnaise, breakfast spreads, protein -fat semi-finished products and candy masses
Water-binding ability	Water retention	Bakery, sausage, confectionery products, cakes, biscuits, food concentrates
Fat-binding ability	Binding of free fats	Sausage and food concentrate products
Foaming ability	Formation of films to retain gas	Biscuits, creams, desserts, pastille marmalade masses

They are good emulsifiers, stabilizers, foaming agents, and also products that firmly retain fat and water.

Protein products obtained from wheat bran were characterized by high biological value and multifunctional properties. The high nutritional and biological value of protein flour and concentrate made it possible to use them in the form of promising improvers of the composition and quality of food raw materials [2,3,40]. Taking into account their amino acid composition, they are recommended as fortifiers or substitutes for protein products.

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Fundamentals of using collaborative technologies in teaching the visual arts

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Annotation: The article is split into three units: brand fundamentals, process basics and case studies. It provides in-depth guidance for both designers and entire branding groups, walking you through a universal five-stage process for brand development and implementation. Bringing together around many brands, The author examines the distillation of modernism in graphic design and how these attitudes and imperatives gave birth to corporate identity. These inspirational designs are organized into three chapters – geometric, effect and typographic – and provide a comprehensive index to inform your own work. Anyone working in logo design will get a lot out of this book.

Keywords: information, culture, paints, computer, designer, picture, filmstrips, video, advertising posters

Therefore, the creation of the theoretical and practical foundations of the use of pedagogical technologies in visual art classes on the basis of the effective use of the opportunities of modern educational technologies determines the relevance of the research. Level of study of the problem.

According to the documents of the Ministries of Public Education and Higher and Secondary Special Education of the Republic of Uzbekistan, the goals of modern education are not to train a narrow range of specialists for a specific field of activity, but to develop the personality of each person, pedagogy in fine arts classes. the use of technologies is its effective implementation. The use of interactive teaching methods in painting classes in fine arts is one of the current issues. The need to apply pedagogical technologies to visual art classes from interactive methods such as brainstorming, cluster, conversation, debate, discussion, puzzle, role-playing games arises based on the study and analysis of the content of pedagogical technology and the essence of traditional education.

It is well known to us that the content of traditional education is mainly built on the basis of the authoritarian position of the pedagogue in this process, the slow activity of visual art students, and the main part of the time allocated for visual art is spent on important theoretical knowledge by pedagogues. was used to describe information, it was expressed that the need to ensure the activity of students of visual arts was not felt. Until now, there has not been any more systematic scientific work or methodical-didactic manual published on the issue of pedagogical technology in teaching the science of painting in school fine art. In order to think about this issue, it would be better to start the issue a little higher and analyze the use of technology, pedagogical technology, and then the use of new pedagogical technology in the teaching of visual arts - in our opinion.

For this, first of all, it is necessary to study the lessons of visual art at school. It is known that school visual arts lessons are carried out in the form of five types of training or technology. 1. Making a picture according to the object. 2. Work on the thematic composition. 3. Decorative practical - decorative art. 4. Sculpture works. 5. Classes are conducted on the basis of art studies Although the teaching technology of this lesson has the same content, the teaching technology in them is definitely different from each other.

The development of color vision in students will be more effective if certain conditions are met: - has developed a methodological system for developing the color vision of students; - if a set of tasks and exercises has been developed aimed at developing the color vision of students in

a children's art school; -if the information is provided taking into account new developments in the field of color science; if non-traditional technologies are used to create a favorable atmosphere in painting classes; - if the work of each student is checked according to developed assessment criteria, taking into account the psychological and age characteristics of each child. As a child grows up, this ability very often fades away and disappears without a trace. If a student is not taught the basics of color science in visual literacy, then later he begins to understand that his drawing is completely implausible. Disappointment in one's abilities sets in, and interest in drawing disappears. When depicting a landscape, scenes of human life, the drawing must be convincing and similar to the original. In the visual arts, an important means of expression is color, which students are introduced to in painting lessons, according to the basics of color science, using color to convey an image in their image. Painting classes allow students to develop skills in working with color. , the ability to use colors as a means of expressiveness in fine art. The most significant achievement of the educational process for students is the level of development of their color vision. Conclusion In an atmosphere of high humanitarian culture and only on the basis of broad humanization of school education, mastery of the wealth of world artistic culture, it is possible to educate a person who strives for self-realization and has a sense of social responsibility, knows how to use and appreciate the spiritual and material wealth of society and contributes to the restoration and enrichment of its spirituality.

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METHODOLOGY OF USING GRAPHIC PROGRAMS IN DEVELOPING
DESIGN THINKING OF ENGINEERS-BUILDERS

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Abstract - Today, the construction industry is developing rapidly. This, in turn, is aimed at forming the design thinking of engineers-builders, their graphic culture, as well as the creative potential of a person. There are many effective works on this front, especially in the teaching of construction drawing, educational efficiency is achieved using modern graphic software. The use of graphic programs designed for the field of architecture is an important tool for the development of future engineers-builders as a more perfect staff in the illumination of the subjects of the science of architectural construction drawing. Therefore, the importance of the application of graphic programs and their descriptions have a special place in elucidating the essence of design thinking.

Key words - design thinking, graphic education, construction drawing, graphic programs, graphics, information and communication, spatial imagination, architecture, drawing, didactics, engineering graphics.

As we know, the rise of beautiful buildings all over the world, their design solution has motivated the beginning of a new stage in the culture of design thinking of engineers-builders in the field of beauty. Design thinking has gradually supplanted the skills of civil engineers, all their traditional forms of personal communication, and created an important foundation for mass education. The very concept of design thinking means design, so it is being used effectively in all areas. It is known that in today's developing era, design thinking is a very broad concept, and it is equally used for designing, running a business or any modern constructions, creating personal tasks. Therefore, it is appropriate to use design thinking as an effective tool in the subjects taught in higher educational institutions, especially in the process of graphic education, which is considered important for civil engineers (higher educational institutions in the field of architecture and technology).

The modern stage of the development of society requires new requirements for the scientific level and competence of a specialist. In the conditions of the increase in the amount of knowledge provided to students, the reduction of classroom training is the reason for the further improvement of the educational process. Increasing the efficiency of the educational process is one of the main tasks of higher education, which can be solved by using modern information technologies in the educational process.

Computer graphics tools have fundamentally changed the approach to teaching methods: visualization of invisible processes and phenomena, such as magnetic and electric fields, chemical reactions, etc., allows to improve their observation and understanding.

P.F. Anisimov, P.M.Bisirkin, A.V.Gololobov, Yu.F.Katkhanova, A.M.Leibov, A.V.Sobolova, F.Liarokapis scientifically proved the effectiveness of using computer technologies in education in their research.

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Computer technology reduces the time required for mechanical repetition in the learning process. For example, instead of writing the theoretical statements of the lesson, students can copy the textbook to data carriers, and this helps to save a certain part of the lesson time. The guidance and advice of the pedagogue is necessary for the completion of graphic or course work, as well as course and diploma projects. Questions asked by students are repeated from year to year. If these questions are included in the e-textbook, the time allocated for referral and counseling will be reduced. If the written control of the test is organized using modern computer tools instead of the traditional method, this will save another part of the pedagogue's time.

The idea of design thinking was first formulated in 1969 by Herbert Simon, author of *The Sciences of the Artificial*. Later, this idea was developed by scientists at Stanford University, Stanford, which promotes the idea of design thinking the design institute was founded. The term "design thinking" has different interpretations. Best defined by the Interaction Design Foundation: design thinking is designed to explore user motivations and needs, challenge misconceptions, and find new solutions to problems. A p-step process is understood. Design thinking (from the English. "design thinking") is a method that helps to find solutions to complex problems that meet the interests of users. This method is based on the principle of anthropocentrism, according to which the purpose of any research and work is the interests of the individual, and not the enterprise, leader, project managers and bureaucratic structures. The task of design thinking is to overcome existing stereotypes and standard ways of solving problems ("thinking outside the box"). This way of thinking is used almost everywhere: planning a trip, renovating an apartment, discovering new media, starting a business, developing a corporate identity and logo. Design thinking is a way of looking at the world and solving problems. It is a continuous process that accompanies an idea all the way to its realization: from the idea that came to the brain, from its testing and approval, to its embodiment in prototyping and its implementation.

A creative approach, teamwork, people orientation, curiosity and optimism are key components of design thinking. The main feature of design thinking is that, unlike analytical thinking, it is a non-critical analysis, a creative process in which completely unexpected ideas lead to the best solution to a problem. The traditional model of school education envisages the transfer of information from the teacher to the student. In this case, the student will have a lot of valuable knowledge in the future, but they will not help to solve a really important social problem. In educational institutions, students do not receive lessons in the form of practical problems that require solving and creation, their task is only to repeat the information received from the teacher. Tell students about a real-life problem and challenge them to come up with a solution using design thinking tools. This will increase the quality of education. Students do not acquire useful knowledge when the teacher provides the necessary information for them to remember. They only learn when they have a problem to solve that they can ultimately make the world even a little bit better. The thinking process built on the principles of design thinking turns students into socially active citizens who are ready to create and implement creative and at the same time viable ideas to solve local and global problems of people in society. Design thinking creates the innovative students that are lacking in our educational institutions. Design thinking methodology teaches how to introduce innovations to solve social problems, test the viability of ideas, check their relevance and demand in a potential target audience. The five core principles of design thinking are: empathy, radical partnership, ideation, prototyping, and iteration. Design thinking can also help make the world of people in your community better and more comfortable, or solve a problem for your

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potential users. In order to "please" them, you need to put yourself in the user's place, think from his position, implement your technological capabilities taking into account the results obtained, and clearly remember your business interests. Because creating a product that is in demand means double-checking its validity using hacks.

There are five main principles of design thinking:

- think unconventionally - add diagrams to boring tables, pictures, texts; search for template solutions to existing problems encountered in business projects;
- appeal not only to the emotional experience of the consumer, but also to logic and profit. For example, the integrated graphic interface of a smartphone there's no point in describing it in detail, even though it's really handy. Moreover, it should be emphasized that such a suitable and modern design will attract the attention of the buyer's friends and make it the star of any gathering;
- use of prototypes - this is especially important for businessmen when creating an innovative product, the prototype clearly shows its strengths and weaknesses;
- adhere to smart minimalism - remove all unnecessary things and constantly improve the product so that it becomes the best;
- accept mistakes positively: any mistake is an experience of gathering the maximum amount of useful knowledge to improve the quality of a product or service.

The position and effectiveness of products and services offered in the world market is determined primarily by its competitiveness. In such a situation, it is not enough to use analytical thinking based on the analysis of available data. Innovation requires creativity, synthesis and the ability to create new products and services. Creative approach, teamwork, people orientation, curiosity and optimistic spirit are the components of design thinking, as well as the methodology used to find new solutions to existing problems. The main feature of design thinking, in contrast to analytical thinking, is not critical analysis, but a creative process in which sometimes the most unexpected ideas lead to a better solution to a problem. The principles of design thinking are applied in a variety of fields, from treating childhood obesity to crime prevention, from the rocket industry to climate change. Design thinking is no longer limited to the creation of new tangible products, but extends to various processes and services, as well as interaction, communication and collaboration. In the context of industrial production, manufacturers began to pay special attention to aspects such as the attractiveness and diversity of the appearance of goods and products, as well as the quality and ease of use of the product. As a result, there was a need for a special specialist who can not only create a product form with an attractive appearance that meets consumer requirements, but also has a good understanding of design issues and machine production technology. Practice shows that it is possible to create a competitive product only if engineering-technical and artistic issues are solved comprehensively. The world's largest companies such as Healthcare, Procter & Gamble and Philips Electronics, IBM, General Electric, Toyota, Samsung, LG are already effectively using design thinking in the organization of the management process and product production. Design thinking is the development of user-oriented products, services and services. Design Thinking - always puts user requests first and only then focuses on technical feasibility and economic feasibility. Design is problem solving. A designer is a problem solver. To solve a problem, to find an effective solution, first conduct research and clearly define the problem, then focus on specific "pain points", develop ideas and select the best among them, create a prototype and testing is required. The Design Thinking method describes how these steps are performed, what to focus on, and what tools to use at each step. The authors

of the design thinking method, Hasso Plattner and David Kelly, are the founders of a design school that combines business and management practices with traditional engineering education. It's not like they invented design thinking, because design thinking is essentially common sense. Plattner and Kelly, however, put the principles into a conceptual framework, created a brand, and began to develop it as a practice. By exploring the stages of the creative process, he put the user at the center and represented business as a creative process. And creative individuals can better understand business tasks. At this point, it is worth quoting an opinion of the famous pedagogue, writer Dale Kornegie according to: "If you get a lemon, make lemonade out of it." Its meaning is becoming very relevant today. The main difference between design thinking and traditional thinking is not a critical analysis, but a creative approach to the process, where unexpected ideas can reveal the best way to solve a problem.

Design thinking is very important in the field of construction. This quality should be at a high level especially among construction engineers. The most important tool for engineers to demonstrate this feeling is graphics software, as many programs have functions that allow you to draw both 2D drawings and 3D model views at the same time. Especially in this regard, there are some BIM programs that are designed for the construction industry. These are ArchiCAD, Revit, Lira, Grasskoper and others. These programs are very convenient for civil engineers. This is based on the following factors:

- the ability to work even on computers with a graphics program that is not considered very powerful;
- easy operation of the program (it works equally well in 2d and 3d drawings);
- creating both a 2D drawing and a 3D view in the program;
- Connection of commands in the command panel to the construction field;
- It is possible to easily change parameters of conditional symbols;
- Availability of the function of changing ready-made 3d models in 2d state;
- Automatic execution of simple and complex cuts;
- Availability of easy connection of models taken from other places to the standard library and the possibility to change their parameters like the standard;
- Availability of the possibility to gather ready documents into one project album;

It is possible to see increasing the practical importance of the subject by introducing and increasing computer graphics topics in the subject programs in the higher educational institutions where the subject of construction drawing is taught. Today, science specialists are required to be computer literate and use the capabilities of graphic programs. Using computer graphics in educational processes:

- spatial imagination develops;
- mastery rates will be high;
- the duration of storage in memory increases;
- creative and logical thinking develops;
- new projects and opportunities for their creation are opened;
- provides some convenience to students and makes it easier to perform graphic work related to construction drawing.

As we know, organizing construction drawing lessons using graphic programs and multimedia electronic textbooks has several advantages over traditional methods of teaching. They are:

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- the quality of the lesson will be at the expected level;
- the information given on the subject is clear and understandable;
- drawings and objects that are related to science and need to be explained are made in front of students using computer graphics capabilities;
- will be able to see the 3D model of the constructed building in six views or four views at once and see the clear model from different angles;
- it is possible to make simple and complex cuts in the finished object and to see these cuts in one way;
- the possibility of explaining the lesson allocated for the subject in a short time;
- lectures on the topic, sets of assignments, test questions of different levels, the availability of a glossary for terms in science can be used as an auxiliary tool. The use of graphic programs in the study of engineering graphics helps to develop the scientific research of students, to strengthen the use of theoretical and practical knowledge of future engineers. These are the main tasks facing higher education today.

Today, there are many different graphic programs that allow you to create electronic models of plans in construction drawings or a number of construction items. BIM and Autodesk companies have taken the lead among the companies that create graphic programs that allow creating such models. Modeling of such objects in engineering graphics disciplines helps them to be better understood by students and significantly increases visibility. Visibility is a very important link, especially for the science of construction drawing.

In all developed and developing countries, the use of an integrative approach in science is one of the main pressing problems, so the role of computer graphics in the teaching process is changing significantly. Computer graphics is not only a source of learning for students and teachers, but it is also considered the main teaching tool. Because computer graphics is becoming the main tool of graphic preparation of students. The reason is that through computer graphics, spatial imagination of students is emerging as the main factor of effective and rapid development. All this is the main goal we have set before us to enliven the educational process, motivate students to understand the essence of the subject faster and perfectly.

In conclusion, the role of graphic education in attractively presenting design ideas to future engineers-builders is incomparable. In this regard, computer graphics can be used as a learning object for electronic drawing and as a tool for teaching geometry and drawing. This implies the formation of students from teachers of higher education institutions not only to work in an automated design system, but also to effectively use the capabilities of these software products in their future professional activities.

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USING PUMPKIN FLOUR IN COOKIE PRODUCTION

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Annotation: The technology of a biscuit semi-finished product of increased nutritional value with the addition of pumpkin flour is proposed. An analysis of the chemical composition of pumpkin flour is presented. Its use for the enrichment of flour confectionery products with vitamins, minerals and dietary fiber is substantiated. It is proposed to use pumpkin flour in the amount of 5-15% by weight of wheat flour in the production of basic biscuit.

Key words: nutritional value, enrichment, flour confectionery, pumpkin flour, semi-finished biscuit product, vitamin C, beta-carotene.

Studies of the effect of pumpkin flour on the properties of biscuit dough showed that with an increase in the amount of pumpkin flour additive, the density of the dough increases by 5.3–9.4%, and the foaming ability of the dough decreases slightly by 0.5–1.9%. The organoleptic characteristics of baked products do not deteriorate with the addition of 5% pumpkin flour [1, 2, 3, 4]. The products had a uniformly colored surface, a light yellow crumb with developed porosity, a taste and aroma with a slight hint of pumpkin seeds. With an increase in the amount of additive, a herbal taste appears in the products, the color of the crumb changes on the cut - a greenish tint appears. Studies have been carried out on the effect of pumpkin flour on the quality of biscuit dough and baked goods. When studying the physico-chemical parameters of baked products, it was established that pumpkin flour contributes to an increase in the moisture content of the semi-finished product up to 25-29%, an increase in protein content by 9-13%, mono- and disaccharides by 6.2-6.9%, fats. Also, the developed semi-finished product, in comparison with the control sample, is enriched with vitamin C and beta-carotene [1, 2, 3, 5]. Based on the research, it was found that the use of pumpkin flour in the production of semi-finished biscuit products improves consumer properties and increases the biological value of the product.

The main disadvantages of biscuit products include a high content of easily digestible carbohydrates, mainly sucrose, as well as a low content of vitamins and minerals. Flour confectionery products based on biscuit semi-finished products belong to one of the most popular product groups [1,2,6,7]. But, like most confectionery products, they differ in unbalanced chemical composition. To eliminate these shortcomings, it is advisable to include additives containing these components in the composition of biscuit products. For these purposes, plant raw materials are best suited, for example, processed fruits and vegetables [1,8,9,10].

Currently, pumpkin flour, which is obtained during the processing of plant seeds, has begun to enjoy special popularity and demand. One of these additives is pumpkin and products of its processing - puree, juice and powder [11,12,13]. Such flour is rich in vitamins B₁, B₂, B₉, C, PP, phospholipids, tocopherols, carotenoids, flavonoids, saturated and unsaturated fatty acids, minerals [14,15,16]. The composition of pumpkin flour contains a significant amount of vegetable protein, which contains a number of essential amino acids (lysine, arginine, isoleucine, phenylalanine) and is perfectly absorbed by the human body. The carbohydrate composition of pumpkin flour is represented mainly by mono- and disaccharides, as well as dietary fiber. Carbohydrate components of pumpkin can be easily fermented by yeast and affect the formation

of the taste and aroma of flour products [17,18,].

Thus, based on the analysis of the chemical composition of pumpkin flour, it can be recommended for use in the production of flour confectionery.

The purpose of this study was to develop a recipe for an enriched biscuit semi-finished product based on the use of pumpkin flour.

In the laboratory of the department, the possibility of using pumpkin flour in the production of basic biscuit was studied and the effect of the additive on the consumer properties of the product was studied [19,20].

To establish the optimal dosage of pumpkin flour in the recipe for semi-finished biscuit, studies were carried out on the effect of its various amounts on the quality of biscuit dough and baked semi-finished product. Pumpkin flour was introduced in an amount of 5-15% by weight of wheat flour. Biscuit dough was prepared in the main way without heating. The control sample was produced according to the traditional recipe No. 1 according to [21,22,23].

To study the influence of the selected additive on the structure of the biscuit dough, the following indicators were studied: foaming, density and moisture content of the samples (Table 1).

As can be seen from the presented data, when pumpkin flour is added to the biscuit dough recipe, the foaming of the dough is slightly reduced. The foaming ability of the dough with the addition of pumpkin flour to wheat flour in the amount of 5% decreased by 0.5%, with the addition of 10% - by 1.4% and with the addition of 15%

- by 1.9%. The decrease in the foaming ability of the dough is associated with an increase in the fat content when pumpkin flour is added.

With an increase in pumpkin flour in the biscuit dough recipe, the density increases by 5.3-9.4%. The increase in density is also likely due to the high fat content of pumpkin flour. The moisture content of the dough changes slightly and remains within the normal range (36-38%) [24,25].

Appearance, color, smell, taste, texture of products were evaluated. According to the results of organoleptic analysis, the sample with the content of 5% pumpkin flour had the best performance. The biscuit had a uniform dark golden color, an even shape without damage, well-developed porosity, and a well-baked crumb. After baking semi-finished products, an organoleptic evaluation was carried out in accordance with GOST 53104-2008. The taste and smell are sweetish, with a slight hint of pumpkin seeds. In all respects, the biscuit semi-finished product was not inferior to the control sample. In samples with the addition of 10 and 15% pumpkin flour, the porosity of the finished semi-finished product worsened, a more pronounced taste of pumpkin seeds appeared, and the products had a pale green color [26,27,28].

One of the main indicators of the quality of baked products is humidity. The moisture content of the biscuit semi-finished product is 25-29%. The results of determining the moisture content in a biscuit semi-finished product with the addition of pumpkin flour are presented [29,30,31].

From the results presented, with an increase in the amount of pumpkin flour, the moisture content of biscuit semi-finished products increases. So, in samples with 5% additive, the moisture content increased by 1.5%, with the addition of 10% pumpkin flour - by 3.3%, and with the addition of 15% - by 5.9%. A slight increase in humidity can be explained by the fact that proteins and dietary fiber contained in pumpkin flour are able to additionally bind and retain water. But at the same time, the humidity of all samples remains within the limits of the standard [32,33].

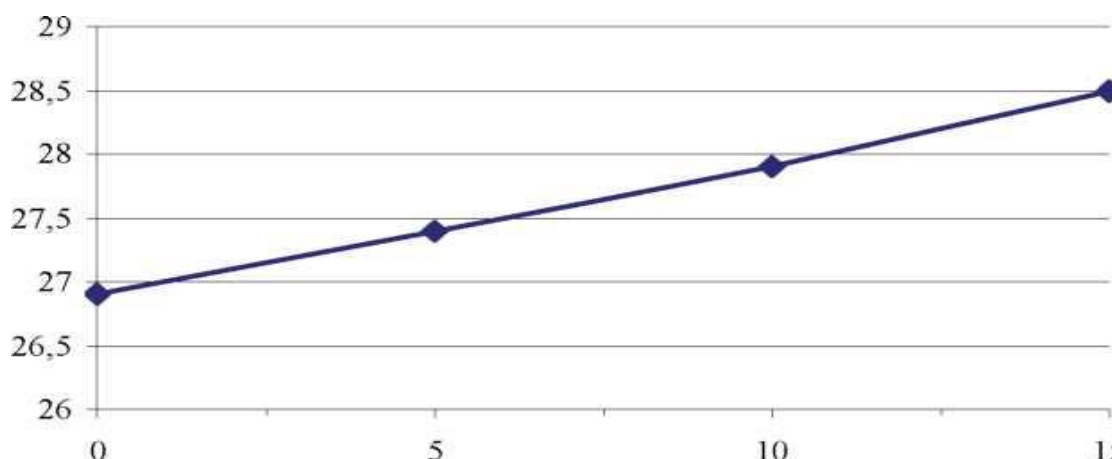
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Since pumpkin flour is a vegetable product and contains a certain amount of organic acids, it was of interest to study the acidity of biscuit semi-finished products. The results of determining the acidity are presented in table. 1.

Table 1

Quality indicators of the studied samples of biscuit dough



Index	Control sample	Biscuit dough with the addition of pumpkin flour, %		
		5	10	15
Foaming ability, %	209,09 ± 3,0	208,06 ± 3,2	206,14 ± 2,5	205,03 ± 2,5
Density, kg/m ³	453,32 ± 4,1	477,49 ±	490,03 ±	497,94 ±
Humidity, %	37,47 ± 0,1	37,38 ± 0,2	37,28 ±	37,19 ± 0,2

Based on the results of the studies, it can be concluded that the addition of 5% pumpkin flour to the biscuit semi-finished product leads to an increase in acidity compared to the control sample by 50%. With the addition of 10 and 15%, the acidity increases by 2 and 2.25 times. Increasing the acidity of the dough contributes to a more intensive flow of sucrose hydrolysis processes in the process of dough formation, as well as strengthening the protein framework of the dough.

The change in the protein content in biscuit semi-finished products was also studied. The results of the study of protein in the samples are given [34,35].

When analyzing the presented results, it was found that with the addition of 5% pumpkin flour, the amount of protein increased by 9.8%, with the addition of 10%, the amount of protein increased by 12%, and with the addition of 15% pumpkin flour - by 13.6%. This is due to the fact that pumpkin flour contains 2.5 times more protein than wheat flour.

The content of carbohydrates in the developed semi-finished products was determined. The results of the conducted studies are shown in fig. 1.

Rice. 1. Change in humidity of the studied semi-finished products

Table 2

Acidity of the investigated semi-finished products

Index	Control sample of biscuit p/f	Biscuit p / f with the addition of pumpkin flour in the amount,%		
		5	10	15
Acidity, hail	0,04	0,06	0,08	0,09

When analyzing the results, it was found that the amount of carbohydrates increased by 6.9% with the addition of 5% pumpkin flour, by 6.6% with the addition of 10% and increased by 6.2% with the addition of 15% pumpkin flour. The increase in the content of carbohydrates is due to the presence in the composition of pumpkin flour of its own mono- and disaccharides. In turn, this suggests the possibility of reducing the sugar content in the recipe, which will lead to a decrease in the calorie content of the product [36,37].

Since pumpkin flour contains quite a lot of fat, it was of interest to determine the fat content in the studied biscuit samples. The results of the conducted research are reflected [19,20].

It can be seen that the mass fraction of fat increased by 24.4% with the addition of pumpkin flour in the amount of 5%, pumpkin flour is a good source of P-carotene. In this regard, it was of interest to determine its content in the investigated semi-finished biscuit products. The results of the studies carried out are reflected in Table. 3.

Table 3

Determination of the content of beta-carotene in the investigated semi-finished products

Index	Control sample of biscuit p/f	Biscuit p / f with the addition of pumpkin flour in the amount , %		
		5	10	15
Beta-carotene,	Not found	0,74	0,85	1,08

From Table. 3 shows that beta-carotene was not found in the control sample, with the addition of 5% pumpkin flour, the content of beta-carotene was 0.74 mg, with the addition of 10%, the content of beta-carotene increased by 12.9%, with the addition 15% content of beta-carotene increased by 31.5%. The use of pumpkin flour in the production of biscuit semi-finished products makes it possible to enrich them with an indispensable component of P-carotene [38].

Pumpkin flour contains vitamin C, in connection with this, the change in its content in the studied samples was determined. The results of the study are presented in Table. four.

Table 4

The content of vitamin C in the studied semi-finished products

Index	Control sample of biscuit p/f	Biscuit p/f with the addition of pumpkin flour in the amount,%		
		5	10	15
Vitamin C, %	Not found	0,58	1,02	1,47

From Table. 4 shows that the control sample does not contain vitamin C. With the addition of 5% pumpkin flour, the content of vitamin C was 0.58%, with the addition of 10 - 10.2%, and with the addition of 15 - 1.47% . The addition of pumpkin flour to the recipe of biscuit semi-finished products helps to increase the content of vitamin C by 1-1.5%.

Thus, on the basis of the conducted studies, it can be concluded that the use of pumpkin flour in the production of biscuit semi-finished products makes it possible to obtain products with high consumer properties. Replacing 5% wheat flour with pumpkin flour makes it possible to enrich biscuit semi-finished products with essential nutrients, improve organoleptic and physico-chemical parameters [39,40].

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**КЛАССИФИКАЦИЯ ПОДХОДОВ К ИНТЕГРАЦИИ И
ВЗАИМОДЕЙСТВИЮ ИНФОРМАЦИОННЫХ СИСТЕМ**

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Накопление большого числа неоднородных, распределенных информационных ресурсов вызывает все увеличивающуюся потребность совместного использования модельно неоднородных информационных компонентов и сервисов в различных применениях, а также их повторного использования и композиции для реализации взаимодействие информационных систем (ИС). Необходимость интеграции разнородных ИС, особенно в таких областях, как государство и бизнес, обуславливает создание множества методов и технологий интеграции, использующих различные модели данных и осуществляемых с помощью различных процедур.

Целью исследований являлась классификация подходов к интеграции ИС. В задачи исследования входило рассмотрение понятия «Взаимодействие ИС» и разработка нескольких классификаций подходов к интеграции ИС по определенным признакам.

Взаимодействие.

В процессе интеграции ИС важное место занимает понятие «Взаимодействие ИС». Под взаимодействие понимается способность ИС взаимодействовать друг с другом. Взаимодействие может проявляться как в виде обычного обмена информацией, так и в выполнении распределенных задач. Необходимость обеспечения взаимодействие возникает при объединении процессов различных организаций, согласовании работы существующей ИС с принятыми стандартными решениями.

Свойство взаимодействие используется также при интеграции нескольких ИС, включении в создаваемую систему баз данных (БД) ранее использованных хранилищ данных, разработке комплексных автоматизированных систем управления, построении сетей информационных хранилищ, а также во многих других случаях. Проблема обеспечения взаимодействие ИС имеет фундаментальный характер. Она актуальна как для унаследованных систем, которые требуется связать с вновь создаваемыми (либо, как минимум, получить возможность использования их БД), так и для проектируемых хранилищ данных, в которых необходимо предусмотреть возможности реализации взаимодействия с другими ИС в перспективе, при изменении требований к ним.

Можно выделить два аспекта взаимодействие: структурный и семантический. Структурный аспект взаимодействие систем означает способность к структурному согласованию сущностей систем. Семантический аспект означает возможность установления соответствия между смыслами единиц информационных систем.

Существующие методы достижения взаимодействие касаются, главным образом, ее синтаксических (структурных) аспектов. Направлены на согласование и преобразование структур данных за счет стандартизации их форматов и использования расширяемых метаязыков. Универсальные подходы к обеспечению взаимодействие ИС на семантическом уровне в настоящее время отсутствуют.

Интеграционные технологии одинаково применимы как в бизнесе, так и в государственном и муниципальном управлении. В первом случае речь идет о построении сквозных логистических цепочек предприятия, во втором о взаимодействии государственных органов друг с другом в ходе предоставления электронных услуг

гражданам и бизнесу. Модель компонентов взаимодействия, применение которой возможно в обоих случаях, представлена на рис. 1.

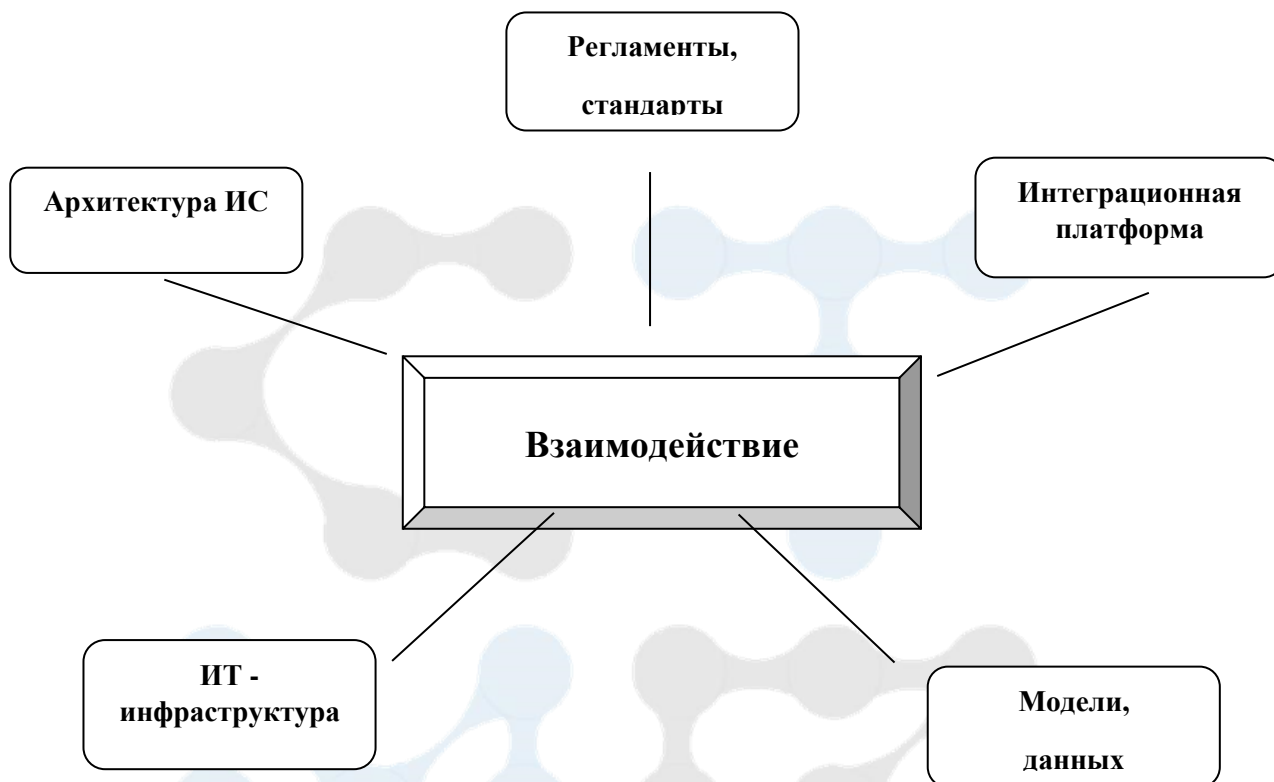


Рис.1. Модель компонентов взаимодействия

Интеграция

Были выделены три основных признака, по которым можно классифицировать подходы к интеграции ИС: вид, уровень и метод интеграции. В настоящее время выделяют несколько видов интеграции (рис 2).

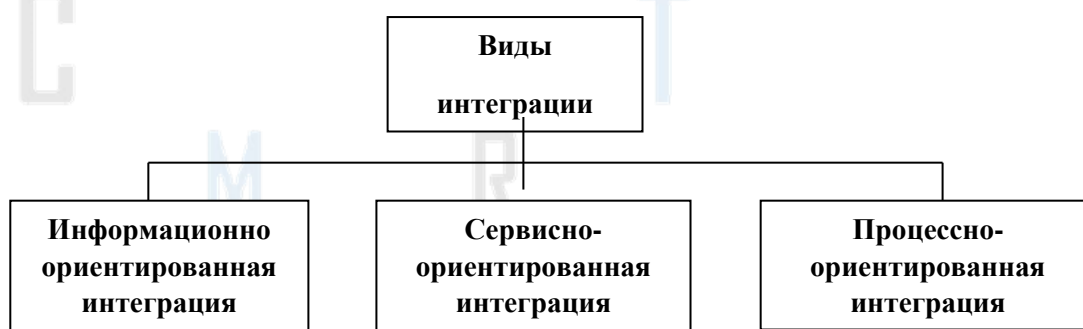


Рис.2. Виды интеграции ИС

Используя теоретико-множественный подход, опишем интеграцию I в виде кортежа $I = \{IO, SO, PO\}$.(1)

Данные кортежа IO, SO, PO представляют собой информационно-ориентированную, сервисно-ориентированную и процессно-ориентированную интеграцию. Далее представим, что модель каждого вида интеграции IO, SO, PO описывается с помощью набора

компонентов и составляет множества классов $\{K\}$, $\{D\}$, $\{F\}$, $\{S\}$ и $\{P\}$. Множество $\{K\}$ показывает количество интегрируемых ИС, множество $\{D\}$ определяет набор данных в процессе интеграции. Данные два класса множеств являются обязательными составляющими всех видов интеграции, назовем их основными. Классы $\{F\}$, $\{S\}$ и $\{P\}$, назовем их дополнительными, определяют наличие объединяемых функций, используемых сервисов и создаваемых процессов соответственно и являются необязательными составляющими множеств $\{IO\}$, $\{SO\}$ и $\{PO\}$.

Информационно-ориентированная интеграция применяется, в основном, когда необходим обмен информацией между несколькими ИС. Данный вид интеграции является наиболее простым и недорогим по сравнению с другими, т. к. данные просто передаются из одной системы в другую с помощью преобразования в необходимый формат. В процессе работы информационно-ориентированная интеграция использует обычно брокеры сообщений, связывающее программное обеспечение (ПО) (middleware), серверы репликации БД и другие технологии, целью которых является распространение информации между несколькими системами. Популярность информационно-ориентированной интеграции связана, прежде всего с высокой степенью распространения ПО на основе реляционных БД, а также соответствующих стандартов. Чаще всего данный вид интеграции используется при интеграции корпоративных приложений (Enterprise Application Integration, EAI).

Опишем информационно-ориентированную интеграцию $\{IO\}$ с помощью вышеописанных классов:

$$\{IO\} = \{k_i, \dots, k_i, d_i, \dots, d_i\}, |IO| = i + j$$

Сервисно-ориентированная интеграция применяется в тех случаях, когда имеет место необходимость в использовании как данных, так и функций ИС. Здесь системы могут совместно использовать функции друг друга. Принцип такой интеграции заключается в использовании функций унаследованных систем, а не в создании новых сервисов. Нет необходимости в создании специальных служб для разных ИС - сервисно-ориентированная интеграция использует связующую среду, которую можно использовать много раз.

До недавнего времени технология сервисно-ориентированной интеграции опиралась на общеизвестные стандарты CORBA и COM, также используемые при EAI-интеграции. Современной тенденцией является использование веб-сервисов и универсального стандарта представления данных, например XML. В целом технология данного вида интеграции опирается на сервис-ориентированную архитектуру ИС (Service Oriented Architecture, SOA). SOA использует такие технологии, которые интегрируют системы посредством использования сервисов, а не написания программного кода. Данная архитектура предполагает наличие трех основных компонентов:

поставщика сервиса, потребителя сервиса и реестра сервисов. Схема взаимодействия компонентов такова:

поставщик сервиса регистрирует свои сервисы в реестре, а потребитель обращается к реестру с запросом. Веб-сервисы работают на основе независимого от платформы и языка программирования стандартного интерфейса. Это позволяет говорить, что технологии сервисно-ориентированной интеграции независимы от конкретных разработчиков ИС.

Представим сервисно-ориентированную интеграцию $\{SO\}$ с помощью следующих классов:

$$\{SO\} = (ki, \dots, k, di, \dots, d, fi, \dots, fk, Si, \dots, S\}, |SO| = i + j + k + l.$$

Процессно-ориентированная интеграция подразумевает использование внутренних бизнес-процессов различных ИС, при этом создается «надсистема», связующая все остальные системы.

Процессно-ориентированная интеграция применяется в самых сложных случаях интеграции, когда необходимо связать большое число разнородных ИС, используя при этом их функции. Сущность данного вида интеграции заключается в предоставлении возможности передачи произвольных данных из одной ИС в другую за счёт работы специализированного мета-процесса. Технологии процессно-ориентированной и сервисно-ориентированной интеграции необходимо применять только в случае доказанной необходимости, т. к. они обе требуют преобразования внутренних функций ИС и являются весьма дорогостоящими. В итоге процессно-ориентированная интеграция необходима при связывании большого числа систем с разной степенью автоматизации бизнес-процессов.

Процессно-ориентированная интеграция $\{PO\}$ может быть записана, как и два предыдущих вида интеграции:

$$\{PO\} = (ki, \dots, ki, di, \dots, di, fi, \dots, fk, Pi, \dots, pi), |PO| = i + j + k + l.$$

Кроме основных видов интеграции ИС, можно выделить несколько уровней интеграции:

1. Интеграция бизнес-процессов (Business Process Integration, BPI) - основана на определении, реализации и управлении процессами обмена информацией между различными системами. Использование данного подхода позволяет усовершенствовать операции и оптимизировать расходы в процессе использования ИС. Элементы включают управление процессами, моделирование процессов и технологический процесс, который охватывает различные задачи, процедуры, архитектуры, требования к входной и выходной информации, а также пошаговое разбиение каждого бизнес-процесса.

2. Интеграция приложений (Application Integration) - осуществляется путем объединения данных или функций одной системы с другой. Передача функций или данных, свойственных какому-либо приложению, в распоряжение другого приложения используется с той целью, чтобы их взаимодействие на стадии исполнения обеспечило бы выполнение определенной прикладной функции ИС.

3. Интеграция данных (Data Integration) - основана на идентификации и каталогизации данных с целью их дальнейшего использования. Успешная реализация интеграции бизнес-процессов и приложений на двух предыдущих уровнях зависит от того, как будут интегрированы в системе данные, принадлежащие разным источникам данных, и БД. На этом уровне данные необходимо идентифицировать, каталогизировать, необходимо построить модель метаданных.

4. Интеграция на основе стандартов (Standards of Integration) - основана на использовании стандартных форматов данных (например, CORBA и XML). Для обеспечения интеграции данных необходимо выбрать стандартные форматы для данных. Стандартами интеграции являются те форматы, которые поддерживают использование и распространение информации и бизнес-данных, стандарты являются основой для проведения интеграции корпоративных приложений.

5. Интеграция платформ (Platform Integration) - касается процессов и

инструментов, с помощью которых системы могут осуществлять безопасный и оптимальный обмен информацией. Чтобы завершить интеграцию систем - базовой архитектуры, аппаратного и программного обеспечения - необходимо интегрировать разнесенные части гетерогенной сети. Интеграция платформ касается процессов и инструментов, с помощью которых эти системы могут осуществлять безопасный и оптимальный обмен информацией. В результате данные могут беспрепятственно передаваться по различным приложениям.

Можно дать следующую классификацию технологий интеграции:

- системы интеграции корпоративных приложений (EAI) - технологии, ориентированные на решение проблем интеграции различных систем, приложений и данных внутри отдельной организации. Иногда для этих технологий используется аббревиатура A2A (Application-to- Application - приложение-приложение);

- системы интеграции между организациями (межведомственной интеграции) Business- to-Business (Business-to-Business Integration, B2Bi) - технологии, ориентированные на обеспечение безопасного, надежного информационного обмена между различными организациями и их информационными системами;

- технологии управления бизнес-процессами (Business Process Management, BPM), являющиеся результатом естественной эволюции классических систем документооборота и делопроизводства (workflow systems) и систем класса EAI и B2Bi. Интеграция здесь основана на единстве бизнес-процессов.

Заключение

Предложенная классификация интеграционных подходов дает наиболее полную картину современных тенденций и технологий, а также систематизирует имеющиеся знания в области интеграции ИС. В реальности процессно-ориентированная, сервисно-ориентированная и информационно-ориентированная интеграция часто сосуществуют друг с другом. Комбинация данных видов зависит от конкретной проблемы, и здесь не может быть универсального решения.

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NEUROPHYSIOLOGICAL FEATURES OF FEBRILE SEIZURES IN CHILDREN

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Summary: *The article presents the clinical and neurophysiological features of febrile seizures in children and the results of a comparative study of children with febrile and afebrile seizures. It has been established that febrile seizures develop during hyperthermia due to a somatic disease and are accompanied by diffuse microorganic symptoms that do not affect the cognitive development of the child.*

Key words: *children, seizure, febrile seizures, afebrile seizures, epilepsy.*

Relevance: Febrile seizures (FS) are currently a common variant of paroxysmal conditions in children [1-5]. Febrile convulsions (seizures, FS) are currently a common variant of paroxysmal conditions in pediatric practice. These are episodes of epileptic seizures that occur in preschool children with hyperthermia not associated with neuroinfection. FS is a benign, age-dependent, genetically determined condition in which the brain is susceptible to epileptic seizures that occur in response to high temperature. [4,6]. According to literature sources, the prevalence of febrile seizures in children from 6 months to 5 years is about 2-5%. Boys get sick more often than girls in a ratio of 1.5-2:1. The peak incidence is observed at the age of 18 months [8].

It has now been revealed that the majority of children who have suffered FS are in normal health, and the condition after a seizure has a benign course. Recently, evidence has emerged that a small number of children after FS may develop a neurological defect, relapses of FS or epilepsy, learning problems, movement disorders and behavioral changes, nonspecific sensory symptoms and memory disorders [11], which requires the provision of timely emergency assistance to children with FS with timely correction of violations [7, 10].

The prevalence of febrile seizures in children from 6 months to 6 years is about 2-5%. Boys get sick more often than girls in a ratio of 1.5-2:1. The peak incidence occurs at the age of 18 months. 80% of patients have a family history of episodes of convulsive seizures of various etiologies. In 25% of children, parents also suffered from similar manifestations in childhood. In most cases, the outcome of the disease is favorable and depends on the correct tactics of the doctor.

Febrile seizures in children are a heterogeneous pathological condition. The exact etiology and pathogenesis have not been established. One of the possible factors in the development of pathology is the immaturity of the central nervous system in children under 6 years of age, which manifests itself in a tendency to generalize processes and weakness of inhibitory activity.

Purpose of the study: to study the clinical, neurological, neurophysiological features of febrile seizures in children with the determination of prognostic criteria.

Research methods included medical history, clinical neurological examination, electroencephalography of the brain (EEG) and magnetic resonance imaging (MRI of the brain).

To achieve this goal, 120 children with febrile seizures aged from 6 months to 5 years were selected. The average age of the children was 3.2 ± 0.12 . Among children with febrile convulsions, children aged 2-3 years predominated: 2-year-old children accounted for 36.7%, 3-year-olds 26.7%. There was a decrease in the number of patients with age: children 4 years old accounted

for 23.3%, and children 5 years old - 10%. Among the examined children with febrile convulsions, there were more boys in the gender ratio - 63.3%, girls accounted for 36.7% of cases.

The first stage of the study consisted of collecting anamnesis, clinical neurological examination and testing to determine speech development delay (SDD) or psycho-speech development (PSRD).

To ensure completeness of registration, the author of this study developed a questionnaire. It included perinatal history data, hereditary factors (presence of febrile seizures, epilepsy in relatives); conditions for the occurrence of seizures (temperature, degree of its rise, type of underlying disease, frequency of diseases), information about the nature, frequency, duration of febrile seizures, data on neurological status, data from additional research methods (EEG, EEG-video monitoring, MRI).

EEG doimiy vakti 0.3 sonia bulgan, "MBN" (2003-yil ishlab chikarilgan) ilmiy-tibby firmasining spectral kartirlanishi bilan "Neurocartograph-1-MBN" 16 channels of electroencephalography yerdamida amalga ruykhatga olindi. "Kogoz harakatining" tezligi – 30 mm/sonia. Yukori frequency filterlarining kyimati 30 Hz, electrodlar karshiligi k̄ypi bilan 10 kOhm. Kanallarning ta'sirchanliga 1 $\mu\text{V}/\text{mm}$ ni tashkil etdi. Signal caliber 50 μV ha, amplitude 50 mW ha tenge baldi. Barcha tadqiqotlar korongilashtirilgan, shovqindan himoyalangan honada, bola makhsus chairda yoki onasining q̄ylida ytirgan xolatda ykazildi. QEEG ertalabki vakt, asosan physiologist uyku holatida, kamdan-kam holatlarda uygok holatda olindi. Mudrok xolatining sodir b̄ylishini xatti-xarakat mezonlari (k̄yzzlar uzoq muddat yumish) va vegetative k̄yrsatkichlar (yurak qiskarishlari frequency sining kamayishi wa mushaklar tonusining pasayishi) bilan nazorat qilindi. "Neuro" dasturidan foidalanib monopolar yozuv amalga oshirildi.

Electrodlar k̄yyish zharayoni, ularni bolaning boshida zhoylashtirish usuli "10-20%" halkaro standard schemaga mos boldi. QEEG yozuvi unipolar, kobikning sakkiz symmetric nuktasidan olib borildi: pešana (FsFd), marcasium (CsCd), bosh suyagining tepa qismi (PsPd) wa ensa (OsOd). Indifferent sifatida bola kulogiga takilgan makhsus kuloq elektrodidan foidalanildi. Elektrodlar boshga yumshok rubber helmet erdamida maqamlandi. QEEG bipolar chikishlarda r̄yyhatga olindi. QEEG taxlilida bolalar miyashida bioelectric faollikning yoshga boglik yziga hos hususiyatlari etiborga olindi. QEEG rhythmic faollying tarifi rhythmni identificationlashning uch mesoni asosida amalga oshirildi: frequency oraligi, faollic focusing tomographic zhoylashuvi, rhythmik tebranishlarning haraqlar bilan bogliqligi (functional reactive). QEEG malumotlarining interpretationsi eshning yziga hos hususiyatlarini etiborga olib, umum etirof ethylgan mezonlar b̄yicha ykazildi. Electroencephalogrammar tekshirilgan bemorlarda bosh mia bioelectric faollying holatini lens baghosini olish imkonini birdie.

The obtained data were subjected to statistical processing on a Pentium-4 personal computer using programs developed in the EXCEL package using a library of statistical functions. Differences in mean values were considered significant at a significance level of $P < 0.05$. To assess the influence of potential risk factors and construct a prediction equation, regression analysis was used, the quality of the 11 model was checked using ROC analysis, and the area under the curve (AUC) was interpreted. When deciding whether groups were equal (in the absence of differences), $p = 0.05$ was determined as the threshold value. Differences were considered statistically significant at $p < 0.05$.

Research results: Temperature is one of the main conditions for the occurrence of febrile seizures. We analyzed individual temperature characteristics associated with the onset of febrile

seizures: the level of temperature during the onset of seizures, the presence of temperature before the onset of seizures, the rate of increase in temperature with the onset of seizures.

The temperature at which febrile convulsions occurred in children was most often above 38.5°C (56.7%), only 6.7% of children had a body temperature less than 38°C. An attack of convulsions was the initial symptom of a febrile illness in 10% of patients; in 90% of cases, the children were already sick and had a fever. Seizures occurred more often with a rapid increase in temperature (50%), and only in 3.3% of cases did seizures occur with a sharp decrease in temperature.

A marker of an increased likelihood of febrile seizures is considered to be perinatal pathology, which may have an impact on the clinical manifestation of febrile seizures and their outcome. When studying the perinatal history, the most significant pathology was taken into account: acute, chronic fetal hypoxia, a combination of chronic hypoxia and acute asphyxia during childbirth, premature birth, birth weight, and mechanical ventilation.

Pregnancy pathology in children with febrile convulsions was more common in the main group - 59.7% than in the comparison group, with a predominance of chronic fetal hypoxia in both groups (Table 1).

Table 1
Perinatal history of children with febrile seizures (%)

Indicators	Group				Assessing the significance of differences
	main (n=72)		comparisons (n=48)		
	abs.	%	abs.	%	
Course of pregnancy	12	16,7	29	60,4	P<0,05
Without pathology	60	83,3	19	39,6	P<0,05
With pathology, including:	54	75,0	10	20,8	P<0,01
- chronic hypoxia (CH) of the fetus	6	8,3	8	16,7	P<0,05
- acute fetal hypoxia	5	6,9	2	4,2	P>0,05
- CHG + acute asphyxia					
Childbirth	55	76,4	31	64,6	P>0,05
Timely	5	6,9	7	14,6	P<0,05
Premature	4	5,6	8	16,7	P<0,05
Caesarean section planned	8	11,1	2	4,2	P<0,01
Emergency caesarean section					
Birth weight, g	1	1,4	0	0	
1000 – 1500	8	11,1	2	4,3	P<0,01
1600 – 2500	63	87,5	46	95,8	P>0,05
More than 2500					
Performing mechanical ventilation after birth	66	91,7	46	95,8	P>0,05
Not carried out	6	8,3	2	4,2	P<0,01

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Statistically significant differences were established in the course of labor, birth weight, and mechanical ventilation after birth between groups of children with febrile seizures with and without disorders of psycho-speech development.

The temperature at which febrile attacks occur is most often caused by acute respiratory diseases, otitis media, pneumonia, intestinal infections, and inflammation of the urinary tract. These infections are the cause of most febrile disorders in childhood. In our study, in the vast majority of cases, the underlying disease in children was acute respiratory infection (86.7%). It is also known that fever as a result of immunization can also provoke febrile attacks. In our case, children who had seizures after immunization accounted for 10%.

It was noted that febrile convulsions were observed in frequently ill children. Thus, according to the study, 70% of children were considered to be frequently ill, since the frequency of respiratory infections was 4-5 or more times a year.

The average duration of attacks was 4.03 ± 2.18 minutes, simple AF was recorded in 77.5% of cases (93 people), complex AF - 22.5% (27 people). Moreover, depending on the development of ZPRD in children with FS of the main group, simple seizures were recorded in 70.8% (51 children), and complex ones in 29.2% (21 children), while in the comparison group in 87.5% (42 children) and 12.5% (6 children), respectively, which was significant ($P < 0.05$).

The majority of children (86.7%; 104/120) had generalized seizures. Of these, 63.3% (76/120) of children had generalized tonic-clonic seizures and 13.3% (16/120) clonic ones; in 10% (12/120) of patients the attack began with limpness. Moreover, in children from the comparison group, clonic seizures were observed in 6.3% of cases (3/48), while in the main group in 18.1% (13/72), which is almost 2.9 times more often ($P < 0.05$).

What was common to all attacks was a sudden and complete loss of consciousness. A generalized tonic-clonic attack was characterized by a tonic spasm with upward movement of the eyeballs, followed by clonic twitching in the limbs and facial muscles, breath holding, and cyanosis of the nasolabial triangle. After the attack, general weakness and drowsiness were noted.

In 13.3% of children, the attacks occurred in the form of clonic convulsions of the limbs and torso with respiratory failure; in 10% of children, at the beginning of the attack, limpness was noted with the eyeballs moving upward, after which clonic twitching in the limbs and torso and breathing disturbance occurred. Regardless of the nature of febrile seizures, all children had post-attack sleep.

Changes in neurological status occurred in both groups with a significant predominance in children of the main group (Table 2).

Table 2
Neurological examination results

Indicators	Groups				Assessing the significance of differences
	main (n=72)		comparisons (n=48)		
	Aбс.	%	Aбс.	%	
	22	30,6	22	45,8	$P > 0,05$
Without changes	50	69,4	26	54,2	$P > 0,05$
With changes, including:	21	29,2	2	4,2	$P < 0,01$
- cranial nerves	12	16,7	5	10,4	$P > 0,05$

We conducted an EEG study of the brain, which was usually carried out at least 10 days after the seizure event. In children with febrile seizures, the waking EEG was without pathology in 76.7%; in 23.3%, EEG changes were recorded, which were predominantly nonspecific: a slight slowdown in the background EEG activity (20.4%), as well as short diffuse theta discharges. and delta waves with an amplitude of up to 100 μ V in the background (3.3%). In the comparison group, pathological changes on the EEG were recorded in 12.5% (6/48), and in the main group in 30.6% (22/72).

Neuroradiological examination of patients with febrile seizures revealed structural changes in the brain only in 1 case (cyst of the septum pellucidum).

The relative risk of developing PVRD (RR) in children with FS with complex attacks is 3.6 (95% CI 1.6 - 8.4; $p = 0.003$), and with simple ones it is 0.5 (95% CI 0.3 - 0.8; $p = 0.004$)

The relative risk of developing PVRD (RR) in children with FS with clonic seizures is 15.4 (95% CI 1.0 – 243.6; $p = 0.05$), and with generalized seizures it is 0.4 (95% CI 0, 3 - 0.6; $p < 0.0001$).

The relative risk of developing PVD (RR) in children with FS in the presence of focal neurological symptoms in the neurological status is 4.0 (95% CI 1.3 - 12.1; $p = 0.01$), and in the absence of abnormalities in the neurological status - 0.5 (95% CI 0.3 – 0.9; $p = 0.009$).

The relative risk of developing PVD (RR) in children with FS in the presence of pathological changes on the EEG is 1.6 (95% CI 1.0 – 2.4; $p = 0.03$).

The relative risk of developing PVD (RR) in children with FS in the presence of an unfavorable course of pregnancy and childbirth is 1.9 (95% CI 1.1 - 3.1; $p = 0.01$), and in the absence of a normal course - 0.6 (95% CI 0.4 - 0.8; $p = 0.001$).

Based on the identified statistically significant differences in the anamnesis, clinical manifestations, data from instrumental research methods (electroencephalography) of children with FS, an equation for predicting the development of PVD was compiled by creating a mathematical formula using the regression analysis method, calculating logistic regression logit (p) using the following formula:

$$\text{logit}(p) = -1,58 + (1,54 \times x_1) + (1,06 \times x_2) + (0,53 \times x_3) + (0,87 \times x_4)$$

где:

x_1 – complex FS (RR = 3,6; 95% ДИ 1,6 - 8,4; $p = 0,003$),

x_2 – clonic seizures (RR = 15,4; 95% ДИ 1,0 – 243,6; $p = 0,05$),

x_3 - disturbances in neurological status in the form of focal neurological symptoms (RR = 4,0; 95% ДИ 1,3 - 12,1; $p = 0,01$),

x_4 – pathological changes on the electroencephalogram (RR = 1,6; 95% ДИ 1,0 – 2,4; $p = 0,03$).

The optimal cutoff value for diagnosing the disease was determined: with $p > 0.74$ – a high risk of developing PVRD, with $p \leq 0.74$ – a low risk of developing PVRD.

The specificity of the proposed formula is 95.6%, and the sensitivity is 93.2%.

Conclusions: EEG nor febrile seizures cannot be definitively accepted as a risk factor for the transition of febrile seizures to epilepsy, taking into account the age of the patients, as well as the time of onset of seizures. In our study, 76.7% of children with epilepsy were diagnosed with EEG pathology, while this indicator was equal to 3.3% in the group of patients with epilepsy.

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Abstract: Forecasting plays an important role in economic research. This allows you to justify and make informed and effective decisions. For these purposes, various methods, approaches and models can be used. At the same time, among the possible models, we highlight probabilistic models that allow us to take into account individual characteristics of the processes, phenomena, and objects under study. We can also build models with given characteristics, which allow us to plan some developments. At the same time, the process of predictive modeling is important in the allocation of various resources. Here, a special place is occupied by the resource of time, which allows one to effectively influence the redistribution of other resources. Thus, we consider probabilistic forecasting models as a time management tool. Using the example of specific probabilistic characteristics, we justify the construction of a certain probabilistic forecast model. We show the possibility of using such a model in time management. The work also provides a number of diagrams and graphs that allow you to understand the progress of this study.

Key words: Model, Forecast, Probability, Banking, Time management

Introduction

The functioning and development of individual economic entities, economic sectors or areas, and the country as a whole depends on effective and timely decisions [1]-[3]. Making such decisions is based on a comprehensive analysis of the process, phenomenon or object under study. This analysis should cover both general trends and specific features of what is being studied [4]-[9]. Various methods, approaches, theories can also be used here [10]-[16]. Moreover, the choice of such tools depends on the specific conditions of the task.

One of the directions in the research should be considered the construction of predictive models [17], [18]. These models allow you to understand the trends inherent in a process, phenomenon or object, and also consider the possibility of assessing their further functioning. This, ultimately, helps to justify the most effective decisions for the implementation of certain plans. A predictive model also helps us understand the specifics of what is happening and understand possible limitations in the development of what we are studying.

Among predictive models, a special place is occupied by models that are based on the probabilistic characteristics of what is being studied [19], [20]. This allows us to take into account (or model) some characteristics of the process, phenomenon or object that we are studying. Thanks to such an assessment, it is possible to simulate various situations and the impact of certain

restrictions on achieving the goals. It is also possible to develop various scenarios, make reasonable choices to make the necessary decisions, and influence the development and functioning of the subject being studied.

An important aspect in decision making is also the ability to evaluate and manage various resources, where such a specific resource as time should be noted [21], [22]. At the same time, by building a predictive model, we can more effectively estimate our time resources and distribute the distribution of other resources over time. Using time management, we can holistically shape our goals and actions for the necessary planning and implementation of assigned tasks.

Thus, the main goal of this study is to consider the probabilistic forecast model as a time management tool in planning individual tasks.

Related work

Considering time management, we can talk about various areas of research in this area. Here we highlight both purely theoretical works and practical developments related to a specific subject area.

Y. A. Olawale and M. Sun consider time management in the process of cost control and timing of commissioning of construction industry facilities [23]. First of all, the authors examine the reasons that influence cost and time overruns. Next, measures are proposed to reduce the consequences of the negative impact of such causes. The basis of the study is the classification of such reasons and their qualitative description. However, the formalization of such a process is not described.

S. Yu, X. Yu B. Shirinzadeh and Z. Man study time management algorithms in manufacturing processes [24]. This study is devoted to the continuous control of robotic manipulators with a limited time mode. The work proposes a new procedure for such control. It is based on Lyapunov's theory of stability. A formalization of the management process is proposed. This allows you to build various models taking into account the time-optimal parameters of the robot's movement.

X. Zhou, V. Koltun and P. Krähenbühl consider tracking the functioning of some objects in the form of a set of points [25]. This helps to formalize certain concepts of time management theory. For these purposes, the work considers the possibility of using deep neural network methods. The use of digital image analysis methods is also proposed. Thus, it becomes possible to detect and monitor the development of a certain process or the functioning of an object. This allows you to simulate various situations in time management.

W. F. Cascio uses time management tools to assess the impact of employee behavior on the efficiency of a business entity [26]. This approach allows us to highlight the strengths and weaknesses in the organization of personnel work and make the necessary improvements in their work. For these purposes, classical methods of analysis were used. However, this approach is limited in formalizing the general process of assessing the efficiency of a business entity, taking into account time management.

P. S. Budhwar, D. S. Saini and J. Bhatnagar evaluate the effectiveness of women as managers [27]. In this case, special attention is paid to the topic of time management. The study was conducted on data from India.

L. H. Melnyk, O. I. Karintseva, O. V. Kubatko, Y. M. Derevianko and O. M. Matsenko consider the issues of restructuring socio-economic systems in new economic conditions [28]. At

the same time, special attention is also paid to time management. The importance of such a component in the context of the transition to a digital economy is noted.

L. K. Ozanne studies various aspects of the use of time management in modern banking management [29]. For these purposes, high-quality data analysis tools are used. The object of study is time banking. The conclusion provides a number of practical recommendations.

C. Valor Martínez and E. Papaoikonomou pay attention to time banking issues based on the use of time management tools [30]. Particular attention is paid to time banking in times of crisis. Attention is drawn to the insufficient amount of empirical data. Therefore, the main tools for such research are qualitative methods. Mixed methods are also used. At the same time, there is a lack of high-quality formalized models.

S. Umamaheswari and A. Valarmathi consider the role of artificial intelligence in ensuring the development of the banking sector [31]. Moreover, such a generalization also applies to time management in banking. Thus, there is a transformation of management: from managing monetary resources to managing resources from the point of view of time dynamics. This allows you to improve existing business models and optimize the decisions that are made. It also becomes possible to automate individual processes.

Thus, we can note the predominant use of qualitative methods of analysis in time management. Therefore, an important aspect of the research is the development or adaptation of some models for their use in time management.

On the relationship between predictive modeling and time management

Predictive modeling, like time management, operates with the concept of time. Therefore, it is logical to consider the relationship between such components from the point of view of the overall research process. This is somewhat depicted in Figure 1.

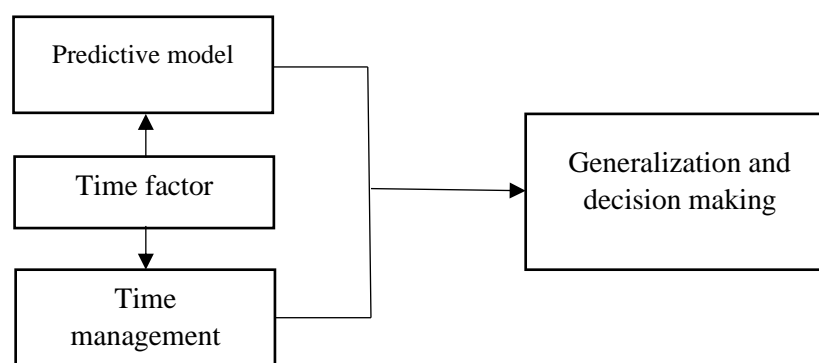


Figure 1: Relationship between predictive modeling and time management

Thus, predictive modeling helps to determine possible changes in the functioning of a certain object in subsequent time periods. This allows you to adjust the operation of such an object taking into account the time factor and optimize its activity. Then the optimization of such a resource as time occurs. Ultimately, predictive modeling improves time management efficiency.

Probabilistic forecast model

To substantiate the purpose of this study, we will consider a probabilistic forecast model. This choice is due to the fact that the probabilistic model allows us to take into account the main characteristics of what is being studied. At the same time, a probabilistic forecast allows us to make certain decisions in the context of time management.

The corresponding forecast model is based on the fact that we will try to determine the coincidence of a certain ratio of data parameters over time [32]. Moreover, such a coincidence can also be interpreted as its falling into a certain area of interest over time (Figure 2).

In this case, the formalized recording of such a model looks like this:

$$P(x_1 < X(t) < x_2, y_1 < Y(t) < y_2) = \int_{y_1}^{y_2} \int_{x_1}^{x_2} f(x(t), y(t)) dx dy, \quad (1)$$

where $P(\dots)$ is the probability of hitting the area of interest specified above;

$f(x(t), y(t))$ – the law of the distribution of a random variable, which allows you to calculate the probability of a random variable falling into any subset of its possible values.

$$f(x(t), y(t)) = \frac{1}{2 \cdot \pi \cdot \sigma_x \cdot \sigma_y \cdot \sqrt{1 - \rho_{XY}^2}} \times \\ \times \exp \left[-\frac{1}{2 \cdot (1 - \rho_{XY}^2)} \cdot \left(\frac{(x - a_x)^2}{\sigma_x^2} + \frac{(y - a_y)^2}{\sigma_y^2} - \right. \right. \\ \left. \left. - 2 \cdot \rho_{XY} \cdot \frac{x - a_x}{\sigma_x} \cdot \frac{y - a_y}{\sigma_y} \right) \right], \quad (2)$$

where

$x(t)$ – the current value of the random variable X ;

$y(t)$ – the current value of the random variable Y ;

a_x – mathematical expectation, which reflects the central tendency of a random variable X

;

a_y – mathematical expectation, which reflects the central tendency of a random variable

Y ;

σ_x – root mean square deviation, which characterizes the rate of change of a random variable X ;

σ_y – root mean square deviation, which characterizes the rate of change of a random variable Y ;

ρ_{XY} – the correlation coefficient, which reflects the degree of interrelationship of the specified indicators.

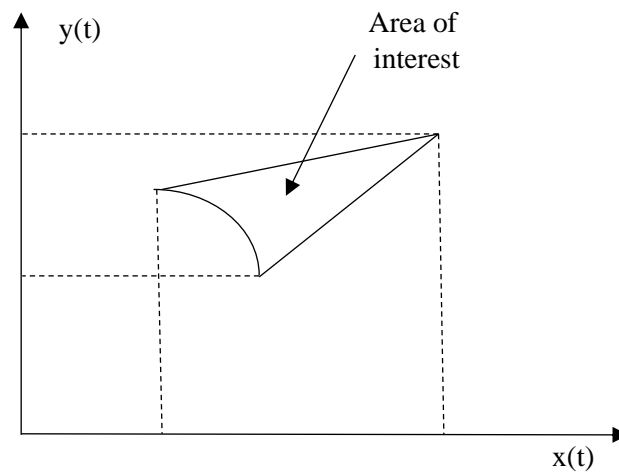


Figure 2: Geometric interpretation of the probabilistic forecast model

In this way, we can model various processes and determine their characteristics taking into account the time factor.

Results and its discussion

As examples, consider some data from banking activities.

Let's assume that we want to explore the possibility of changes in bank liquidity over time, depending on profitability. In this case, we will consider the same model parameters, with the exception of liquidity indicators. In the first case, we assume that liquidity values vary within 58-62%. In the second – 37-42%. At the same time, the bank expects that the yield at successive time intervals changes by 0.2% points each time. The result is a certain value that characterizes the probability of falling into the area of interest (reaching liquidity values).

For the corresponding analysis, we use formulas (1) and (2).

Figure 3 shows the first result, Figure 4 shows the second.

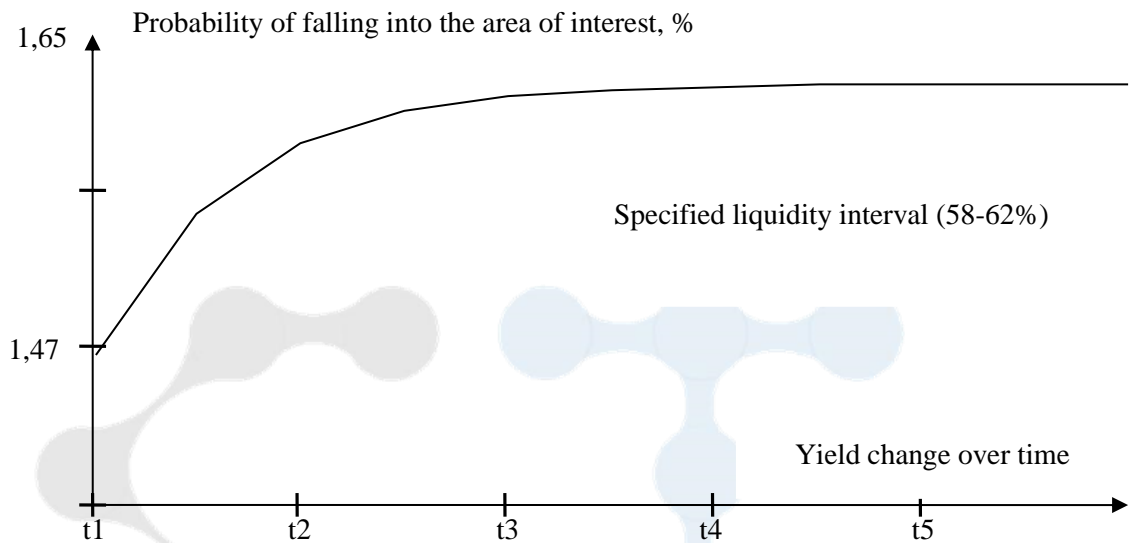


Figure 3: Possible changes in liquidity and profitability over time (Example 1)

We see that the corresponding change in liquidity has insignificant probabilistic indicators. At the same time, over time, a stabilization of such indicators is observed.

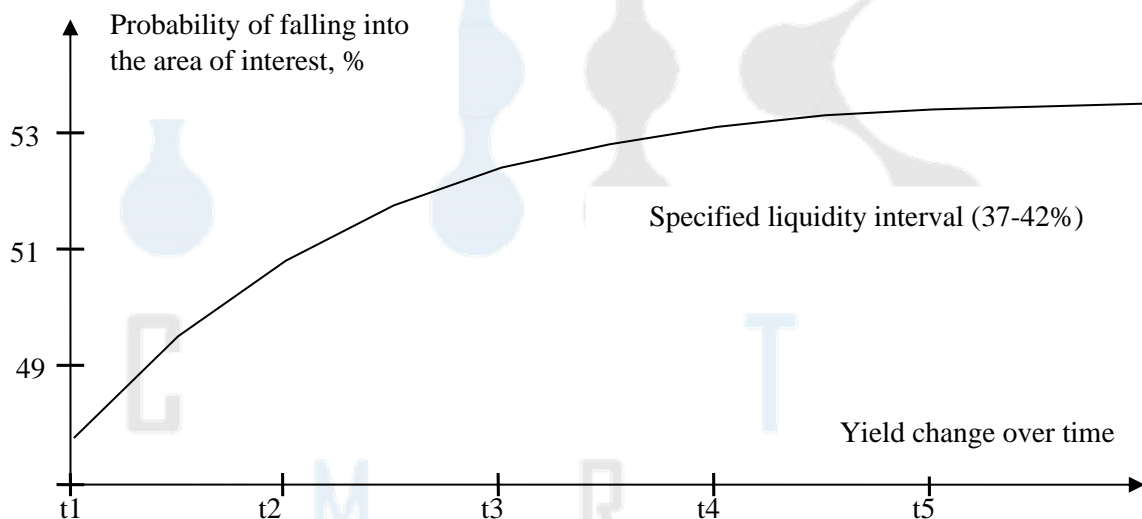


Figure 4: Possible changes in liquidity and profitability over time (Example 2)

This shows a completely different possibility of achieving a given level of liquidity. This allows you to make informed decisions taking into account the time factor and forecast indicators that are the most realistic. In the second case, we also see that we will need more time to stabilize the required liquidity indicators. In this case, there is a smooth increase in the change in the value that characterizes the probability of falling into the area of interest. However, this approach allows for more realistic planning of time and achievement of certain indicators.

Conclusion

The work discusses the main points of time management. For these purposes, various literature sources were analyzed and a conclusion was made about the advisability of considering predictive models.

We examined a probabilistic forecast model and showed the possibility of combining it with time management. A formalization of this approach is presented. A specific example shows the feasibility of using the proposed approach in the implementation of time management.

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**THEORETICAL AND PEDAGOGICAL FOUNDATIONS UNDERLYING THE
PROFESSIONAL COMPETENCE OF PROSPECTIVE PHYSICAL EDUCATION
INSTRUCTORS.**

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Annotation

This scientific paper seeks to investigate the theoretical pedagogical foundations that support the cultivation of professional competence in prospective physical education instructors. The responsibilities of a physical education teacher extend beyond the transmission of knowledge and skills; they involve fostering the physical, cognitive, social, and emotional growth of students.

Keywords: professional competence, physical education instructor, pedagogical theories, teaching approaches.

Professional competence refers to the knowledge, skills, abilities, and attributes that individuals possess and apply in their professional roles to perform tasks, solve problems, and achieve desired outcomes effectively and efficiently. It encompasses both the technical expertise required for a specific profession and the broader competencies necessary for success in the workplace.

Physical education plays a vital role in the holistic development of students, encompassing physical fitness, motor skills, and overall well-being. The professional competence of physical education teachers is crucial in ensuring effective teaching and positive student outcomes. Pedagogical theories provide a theoretical framework for understanding the learning process and guiding teaching practices. Constructivism, behaviorism, and humanism are three prominent pedagogical theories that influence the development of professional competence among physical education teachers. Constructivism emphasizes the active participation of learners in constructing their knowledge through meaningful experiences, while behaviorism focuses on the acquisition of observable behaviors through reinforcement and conditioning. Humanism emphasizes the importance of individual needs, interests, and self-directed learning.

The future physical education teacher will need to possess a range of professional competencies to effectively fulfill their role in an evolving educational landscape. Here are some key competencies that will be important for the physical education teachers of the future:

❖ **Subject Knowledge** - a solid grasp of the subject matter is crucial. Prospective physical education instructors need to possess a profound knowledge of exercise physiology, biomechanics, motor development, as well as sports rules and strategies. It is important for them to keep abreast of the most recent research findings and advancements in the field.

❖ **Pedagogical Skills** - it is essential for prospective physical education instructors to possess the proficiency to teach and communicate effectively with students. They should be well-versed in instructional techniques, curriculum design, and assessment approaches that foster student learning and participation.

❖ **Technology Integration** - as technology becomes more prevalent in education, prospective physical education instructors need to feel at ease integrating technological tools and resources into their teaching methods. This involves utilizing applications, wearable devices, and

online platforms to improve the monitoring of physical activity, analyze data, and provide personalized instruction.

❖ **Inclusive Teaching Practices** - physical education instructors need to excel in establishing inclusive and encouraging learning atmospheres. They should possess the skill to modify activities and teaching approaches to accommodate the diverse requirements of students with different abilities, backgrounds, and interests.

❖ **Health Promotion and Wellness** - prospective physical education instructors need a thorough grasp of the principles of health and wellness. They should possess knowledge in areas such as nutrition, mental health, injury prevention, and overall well-being. These individuals can play a crucial role as champions in encouraging healthy lifestyles among their students.

❖ **Collaboration and Communication** - educators in physical education need to possess strong collaborative skills and effective communication abilities. It is essential for them to engage in cooperative efforts with fellow teachers, parents, and other professionals to foster the growth of students. Maintaining transparent and open communication with both students and their families is of utmost importance.

❖ **Continuous Professional Development** - considering the swiftly evolving landscape of education, prospective physical education instructors need to dedicate themselves to continuous learning. They should proactively pursue chances for professional growth, participate in workshops and conferences, and employ reflective methods to consistently enhance their teaching abilities and stay abreast of contemporary trends.

❖ **Leadership and Advocacy** - prospective physical education instructors ought to champion the cause of physical education and underscore the significance of physical activity within educational institutions. They should demonstrate leadership capabilities to endorse and support high-quality physical education initiatives, obtain necessary resources, and actively participate in the development of policies that enhance the physical well-being of students.

Effective teaching methods are essential for fostering student engagement and achievement. Inquiry-based learning, cooperative learning, and differentiated instruction are teaching methods that contribute to the development of professional competence among physical education teachers. Inquiry-based learning encourages students to investigate, explore, and problem-solve, promoting critical thinking and independent learning. Cooperative learning fosters collaboration, communication, and teamwork among students, enhancing their social and interpersonal skills. Differentiated instruction acknowledges students' diverse learning needs, enabling teachers to tailor instruction and support individual student growth.

Continuous professional development is crucial for enhancing the professional competence of physical education teachers. Engaging in professional development activities such as workshops, conferences, and reflective practices allows teachers to update their knowledge, acquire new skills, and stay abreast of the latest research and pedagogical trends. Collaboration with colleagues, mentoring programs, and participation in professional organizations also contribute to professional growth and competence.

The professional competence of future physical education teachers relies on a strong theoretical pedagogical foundation. The integration of pedagogical theories, effective teaching methods, and ongoing professional development is essential for preparing physical education teachers who can effectively facilitate student learning and development. This article highlights the significance of incorporating theoretical pedagogical bases into teacher education programs to

foster the professional competence required for the ever-evolving field of physical education. It is important to note that the specific competencies required for professional roles may vary depending on the field or industry. Different professions may have their own sets of technical knowledge and specialized skills that are crucial for professional competence.

In summary, the professional competence of future physical education teachers will extend beyond traditional teaching skills. They will need to integrate technology, promote inclusivity, prioritize health and wellness, collaborate effectively, engage in continuous professional development, and advocate for the importance of physical education. By developing these competencies, they can contribute to fostering healthy and active lifestyles among students while meeting the evolving needs of education. Continuous learning and staying updated with industry trends and advancements are key to maintaining and developing professional competence throughout one's career.

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MODERN METHODOLOGICAL TECHNOLOGIES IN PRIMARY CLASSES

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Annotation: Students will have to advertise the topic given in the handouts, the qualities of the person or object, actions, excerpts from the work, and role-playing instructions. Also, this method can be used to recommend poems, fairy tales, stories and other small works for reading lessons outside the classroom.

Key words: student, pedagogue, innovation, methodology, technique, education.

In fact, modern pedagogical technologies increase the productivity of the educational process, form the independent thinking process of students, increase enthusiasm and interest in knowledge in students, form the skills and competencies of solid assimilation of knowledge, free use of it in practice. In primary classes, where the child's thinking is being formed, it is very important for the teacher's skills, his skillful application of pedagogical technologies to the educational process, the search for new methods and methods of education, and the creative use of pedagogical experiences.

Morphemics is the doctrine of meaningful parts of words. Meaningful parts of the word are called morphemes. For example, the word "workers" consists of the parts "work", "chi", "lar" and "our". Each of these has its own meaning within the word. This is the last limit in dividing the words of our workers into meaningful parts. If these parts are divided again, its meaning will be lost. So, a morpheme is the smallest meaningful part of a word.

The linguist scientist Sh.Rakhmatullaev says that the morpheme is the main unit of construction after the lexeme and serves to express grammatical meaning, unlike the lexeme (Greek morphē - (form)).

Both a lexeme and a morpheme are equivalent to a part as a linguistic unit (linguistic unit). A lexeme passes to its full state and enters speech only after receiving a grammatical description from the point of view of its category. A morpheme is usually added to the lexeme of the category it belongs to. A lexeme is a leading unit, a unit to which a morpheme is added, a morpheme is a unit to be added to a lexeme.

A morpheme, like a lexeme, is an abstract unit: it is reflected as a symbol in the language memory part of the brain, and in this case it is called a linguistic unit. As a linguistic unit, a morpheme is a unity of expression and content. For example, the part -m at the end of the keldim unit is equivalent to a morpheme; the phoneme m serves as its expressive aspect; and the aspect of content consists of the meaning (attributing the I person to the unit).

The content aspect of a morpheme is the grammatical meaning it expresses. The content of a morpheme is simpler than the content of a lexeme: a lexeme is the name of a reality and performs a nominative function, while a morpheme does not have a naming function, but only a significant function: it expresses a grammatical meaning. The symbol of a morpheme in the state of a linguistic unit contains information about its expressive aspect and its characteristic features, as well as about the content aspect and its characteristic features. Every use of a morpheme is made by copying the symbol embodying this information; the representative of a morpheme that appears as a material unit as a result of such a process is called a morph and is called a speech unit. Therefore, it is necessary to distinguish between the status of a linguistic unit in the language memory part of a morpheme and the status of a speech unit as a pronunciation unit.

So, there is a physical similarity between a lexeme and a morpheme: in both, a phoneme serves as an aspect of expression, and both are equivalent to a part as a linguistic unit. Lexemes and morphemes differ significantly in terms of other important features. It is wrong to interpret a morpheme as a single language unit and a lexeme as a type of morpheme. If we agree with such a wrong opinion, then we support the opinion that the vocabulary stage of language development does not have its own independent unit. Such an idea is contrary to the study of the stages of language construction as a system. Lexeme - a unit belonging to the vocabulary stage of language construction, morpheme - a unit belonging to the morphemes stage of language construction; lexeme - lexical unit, morpheme - grammatical unit. A morpheme is the smallest linguistic unit used to express grammatical meaning. In the literature, a morpheme is defined based on language (more precisely, language) and speech. The first type of approach says "Morpheme is the smallest meaningful unit of language...". In this case, the morpheme is considered as a unit that makes up the structure of the language, but the word (water) is given as an example, and it is emphasized that this word is divided into the lexical morpheme of water and the additional (generalization, affixal, grammatical) morpheme -chi. , to the second type of approach

- returns to the idea that "a morpheme is a meaningful part of a word" that is, to evaluate a morpheme based on speech.

That's why introducing pedagogical innovations into the educational process, using pedagogical technologies in education, using various innovative methods and methods, and constantly seeking to increase the effectiveness of education has become the need of today.

It is known that today in the course of the lesson "Brainstorming", "Crossword", "Sinkway", "Muzyorar", "Case study", "Insert", "Venn diagram" and "BBB" technologies are used to organize the educational process. . In this article, we recommend several more innovative methods that serve to ensure the effectiveness and quality of the teaching process.

The "Advertising" method shows its effectiveness mainly in elementary school reading classes. This method can be used in the stages of the lesson process: asking about the passed topic and strengthening the new topic. In this process, the teacher gives the students handouts in the order appropriate to the essence of the topic, in which "Advertise!" the main rule is that the combination is written.

Pupils will have to advertise the topic given in the handouts, the characteristics of the person or object, actions, excerpts from the work, role-playing instructions. Also, this method can be used to recommend poems, fairy tales, stories and other small works for reading lessons outside the classroom. In this case, a student or a group of students recommends poems, fairy tales, stories and other small works of other genres for reading to other students. In the process of recommendation, various forms of advertising are used. The advantage of the "advertising" method can be seen in the following:

- the students' speech becomes more fluent, the skills of speaking in front of the team and freely expressing their opinion are formed;
- a meaningful organization of the lesson process is achieved, students' interest in the lesson increases, respect for books is formed in them, and their passion for reading works of art increases;
- pupils' outlook expands, healthy competition environment is created, respect for other people's opinion, listening to them carefully, concentration and thinking skills are formed.

"Pair of fingers" method is one of the effective methods that can be used in mother tongue lessons. The name of this method arouses the child's interest in performing it. The method can be

used at different stages of the lesson. For example, it is effective to use the number topic as homework in mother tongue classes. The "Pair of Fingers" method reflects the integration of native language and practical art. Students' fingers are used in the application of the method. In this, the teacher explains to the students to write numbers and counting words on the fingers of the right hand with the help of manual labor, and on the fingers of the left hand to draw pictures of people-things with the quantity indicated, and at the last stage, two when the fingers are joined, it is emphasized that there is a correspondence between the number and the indicated quantity. "Pair of fingers" prepared by the teacher in advance is shown as an example and explained by means of a picture: the left hand index finger has 2 numbers and a piece of paper written on it, the right hand On the index finger, a picture of an onion is drawn. When we put two fingers together, the word "Two onions" is formed. Continuing in this way, we draw pictures and write numbers on the remaining fingers.

Through the "Pair of Fingers" method, the following knowledge, skills, abilities and qualities are formed in children:

- the student's aesthetic taste is formed, his creative thinking increases, his interest in art and painting increases;
- the student's intellectual thinking ability is formed while the student's manual skills are developed;
- increases the interest of the teaching team in the lesson, encourages them to be active, and learns to what extent they understand the topic;
- student's interest in mathematics, art and technology, along with the subject of the mother tongue. Because, in the process of making "Pair of Fingers", the student draws, cuts and calculates and describes it on his fingers;

It is appropriate to use the "Rainbow polish" method for primary classes. This method can also be used in mother tongue, mathematics and reading classes. For example: when classifying words in mother tongue classes, classify words such as doll, car, laughed, cried, yellow, big, small, nine, and see words related to the noun group The task is to place the words of the adjective group on the blue line. This method can be used during the division of numbers into unit units in the mathematics lesson. That is, if we take the first color of the rainbow as a one-digit number, then the color of the second row can be an example of a two-digit number.

The following knowledge, skills, abilities and qualities are formed in children through the "Rainbow Shine" method:

- the student remembers the category of words by colors;
- students develop ideas about natural phenomena, they develop love for the environment and nature, and the skills to preserve it;
- pupils' worldview and scope of imagination expands, concentration, thinking, intelligence and resourcefulness skills develop.

The "Crossword" method is one of the methods that have been used for a long time, and we can find it in different textbooks of each class. In the preparation of crosswords, the Microsoft Word computer program, which is an information and communication technology tool, is mainly used. However, it can be seen that crosswords prepared using the Microsoft Excel program of the computer give more effective results than the previous ones. It is true that the Microsoft Excel program is a bit complicated and is launched on the basis of formulas, but it is a requirement of

the time for teachers to acquire knowledge in the field of information and communication technologies.

Before completing the crossword prepared in the Excel program, it is possible to give ideas that encourage the students to complete the crossword and thereby increase their interest.

In the process of solving the innovative crossword, if the students answer incorrectly, our "smiley" will change to the form of sadness, if they answer correctly, you can see that the "smiley" is laughing. The advantage of the crossword is that checking the correctness of the answers given by the students is determined by a computer program and not by the teacher and appears on the screen. This ensures that the teacher's ability to evaluate students is increased and time savings are achieved. At the end, if all the answers are correct and clear, we can see words of praise for the students on the screen.

"Through the innovative "Crossword" method created in the Microsoft Excel program, the following knowledge, skills, abilities and qualities are formed in students:

- along with the knowledge related to the subject of the crossword puzzle, students will also develop knowledge about the science of "Informatics", become aware of the possibilities of information and communication technologies;
- students are interested in technologies, a wide desire to use them is formed, as well as information in classes
- the use of technologies increases students' interest in classes, improves the class environment;
- checking the correctness of the answers given by the students is determined by the computer program and not by the teacher and appears on the screen. This ensures that the teacher's ability to evaluate students is increased and time savings are achieved.

In conclusion, we can say that in the highly developing process of the information and communication system, it is very important for the teacher of primary education to have deep knowledge of techniques and technology, to be able to analyze them, and to be knowledgeable and skillful at the level of innovation. For this, in the process of organizing a lesson, he should choose and use methods that are understandable, easy and interesting for all students, use visual aids, apply newly developed technical tools, encourage students to work creatively and independently. It is desirable to use pedagogical technologies correctly and effectively. If the teacher is able to meaningfully organize the lesson based on creativity, the student's interest in science will increase.

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**THE ROLE OF EASTERN MATHEMATICIANS IN THE DEVELOPMENT OF
PHILOSOPHY**

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Abstract

This article explores the role of Eastern mathematicians in the development of philosophy. It sheds light on their significant contributions to philosophical thought, which have often been overlooked. The research methodology employed includes a literature review, analysis of primary and secondary sources, case studies, comparative analysis, consideration of historical context and cultural influences, interdisciplinary approaches, and critical analysis. The results reveal that Eastern mathematicians, such as those from ancient China, India, and the Islamic world, made substantial contributions to mathematical knowledge, providing the foundation for philosophical inquiries. The integration of mathematics and philosophy in Eastern cultures is evident, influencing philosophical schools and prompting discussions on fundamental concepts. The reciprocal influence between Eastern and Western philosophical traditions is also explored, highlighting the impact of Eastern mathematical concepts on Western philosophers. Understanding the role of Eastern mathematicians enriches our understanding of the interconnected nature of mathematics and philosophy and the diverse contributions to human intellectual pursuits.

Keywords: Eastern mathematicians, Philosophy, Mathematical contributions, Integration of mathematics and philosophy, Historical context, Cultural influences

Introduction

Philosophy and mathematics have been intertwined throughout history, with each discipline influencing and shaping the other. While Western mathematicians, such as Euclid, Pythagoras, and Descartes, are widely recognized for their contributions to philosophy, the role of Eastern mathematicians in the development of philosophy is often overlooked. This article aims to shed light on the significant contributions made by Eastern mathematicians to the evolution of philosophical thought.

Throughout history, the disciplines of mathematics and philosophy have intersected and influenced each other in profound ways. While Western mathematicians have often been acknowledged for their contributions to philosophy, the role of Eastern mathematicians in the development of philosophical thought has often been overlooked. This article aims to shed light on the significant and often underappreciated contributions made by Eastern mathematicians to the evolution of philosophy.

The Eastern world, encompassing cultures and civilizations in China, India, and the Islamic world, boasts a rich heritage of mathematical and philosophical achievements. These diverse traditions not only developed sophisticated mathematical systems but also engaged in profound philosophical inquiries, resulting in a unique integration of mathematical and philosophical thought.

In ancient China, for instance, mathematics and philosophy were deeply intertwined. The concept of Yin and Yang, which represents the interconnectedness and balance of opposing forces,

influenced both mathematical and philosophical discourses. Eastern mathematicians such as Liu Hui and Zhu Shijie made significant contributions to geometry, algebra, and numerical systems, thereby advancing mathematical knowledge while exerting a profound influence on philosophical schools such as Neo-Confucianism and Taoism.

Similarly, Indian mathematicians, including Aryabhata, Brahmagupta, and Bhaskara, developed intricate mathematical systems that went hand in hand with their philosophical inquiries. These mathematicians explored concepts such as infinity, calculus-like techniques, and the nature of reality, which had profound implications for philosophical thought. Their mathematical achievements influenced philosophical schools like Vedanta and Buddhism, stimulating profound discussions on the nature of existence and consciousness.

Moreover, during the Islamic Golden Age, Eastern mathematicians played a pivotal role in preserving and expanding upon the mathematical and philosophical knowledge of ancient civilizations. Scholars such as Al-Khwarizmi, Al-Kindi, and Al-Farabi translated and synthesized Greek, Indian, and Persian mathematical works, contributing to the development of algebra, geometry, and trigonometry. These advancements not only propelled mathematical knowledge but also influenced philosophical schools like Islamic philosophy and Sufism.

The influence of Eastern mathematicians on Western philosophy cannot be overlooked either. The translation and transmission of Eastern mathematical and philosophical texts during the Renaissance and subsequent periods introduced new ideas that challenged and expanded Western philosophical thought. Eastern concepts such as zero, non-Euclidean geometry, and the concept of infinity fundamentally impacted Western philosophers, including Descartes, Leibniz, and Kant.

In conclusion, the role of Eastern mathematicians in the development of philosophy is a rich and often underestimated aspect of intellectual history. The contributions made by Eastern mathematicians not only advanced mathematical knowledge but also influenced and shaped philosophical thought. By exploring the profound interplay between mathematics and philosophy, we gain a deeper understanding of the diverse and interconnected nature of human intellectual pursuits.

Research Methodology

To investigate the role of Eastern mathematicians in the development of philosophy, a comprehensive research methodology is essential. This section outlines the approach and methods employed to gather and analyze relevant information on this topic.

1. Literature Review:

The initial step involves conducting a thorough literature review to identify existing scholarly works, research papers, books, and articles that discuss the contributions of Eastern mathematicians to philosophy. This review will provide a foundation of knowledge, key concepts, and historical contexts related to the topic.

2. Primary and Secondary Sources:

Both primary and secondary sources will be utilized to gather information. Primary sources may include original mathematical texts, philosophical treatises, and historical documents from Eastern civilizations. Secondary sources encompass scholarly interpretations, analyses, and critical evaluations of the primary sources.

3. Case Studies:

Case studies will be employed to examine specific examples of Eastern mathematicians and their impact on philosophy. By selecting key figures such as Liu Hui, Aryabhata, and Al-Khwarizmi, their mathematical achievements, philosophical connections, and historical significance can be explored in detail.

4. Comparative Analysis:

A comparative analysis will be conducted to identify similarities and differences between Eastern and Western mathematical and philosophical systems. This analysis will highlight areas of influence, exchanges of ideas, and the reciprocal impact between the two regions.

5. Historical Context and Cultural Influences:

Understanding the historical context and cultural influences that shaped Eastern mathematicians' contributions to philosophy is crucial. It requires examining the social, political, religious, and intellectual climate of ancient China, India, and the Islamic world. This analysis will provide insights into how these factors influenced the integration of mathematics and philosophy.

6. Interdisciplinary Approach:

Given the interdisciplinary nature of the topic, an integrated approach will be adopted, drawing on methodologies and frameworks from mathematics, philosophy, history, and cultural studies. This approach will ensure a holistic understanding of the subject matter.

7. Critical Analysis:

A critical analysis of the gathered information will be conducted to evaluate the significance, impact, and relevance of Eastern mathematicians' contributions to philosophy. This analysis will involve identifying key themes, trends, and philosophical concepts that emerged from their mathematical advancements.

In conclusion, this research methodology combines a comprehensive literature review, utilization of primary and secondary sources, case studies, comparative analysis, historical context, cultural influences, interdisciplinary approaches, and critical analysis. By employing these methods, a nuanced and comprehensive understanding of the role of Eastern mathematicians in the development of philosophy can be achieved.

Results and Discussion

The investigation into the role of Eastern mathematicians in the development of philosophy has yielded significant findings that highlight their profound impact on philosophical thought. The results and their subsequent discussion shed light on the contributions made by Eastern mathematicians, the integration of mathematics and philosophy in Eastern cultures, and the influence of Eastern ideas on Western philosophical traditions.

The research revealed that Eastern mathematicians, such as Liu Hui, Zhu Shijie, Aryabhata, Brahmagupta, and Al-Khwarizmi, made substantial contributions to the advancement of mathematical knowledge. Their work encompassed diverse areas, including geometry, algebra, numerical systems, calculus-like techniques, and the exploration of infinity. These mathematical advancements provided the foundation for philosophical inquiries, prompting profound discussions on the nature of reality, existence, and consciousness.

Moreover, the integration of mathematics and philosophy in Eastern cultures was evident. In ancient China, the concept of Yin and Yang influenced both mathematical and philosophical discourses, shaping the understanding of balance, harmony, and interconnectedness. Similarly, Indian mathematicians engaged in philosophical investigations alongside their mathematical explorations, resulting in the development of philosophical schools like Vedanta and Buddhism.

The discussion also highlighted the reciprocal influence between Eastern and Western philosophical traditions. The translation and transmission of Eastern mathematical and philosophical texts during the Renaissance and later periods introduced new ideas that challenged and expanded Western philosophical thought. Eastern concepts like zero, non-Euclidean geometry, and the concept of infinity fundamentally impacted Western philosophers such as Descartes, Leibniz, and Kant.

Furthermore, the research emphasized the cultural and historical context that shaped the contributions of Eastern mathematicians. The social, political, religious, and intellectual climate of ancient China, India, and the Islamic world played a significant role in fostering the integration of mathematics and philosophy. These factors influenced the development of philosophical schools, the exploration of metaphysical concepts, and the preservation and transmission of knowledge.

Overall, the results and subsequent discussion underscore the crucial role played by Eastern mathematicians in the development of philosophy. Their mathematical achievements not only advanced knowledge in their respective fields but also influenced and shaped philosophical thought. The integration of mathematics and philosophy in Eastern cultures, along with the reciprocal influence between Eastern and Western traditions, highlight the interconnectedness of human intellectual pursuits and the rich tapestry of ideas that have shaped our understanding of the world.

Conclusion

In conclusion, the role of Eastern mathematicians in the development of philosophy is significant and often overlooked. Through their mathematical advancements, Eastern mathematicians laid the foundation for profound philosophical inquiries and influenced the evolution of philosophical thought. Their contributions spanned diverse areas, including geometry, algebra, numerical systems, calculus-like techniques, and the exploration of metaphysical concepts such as infinity. The integration of mathematics and philosophy in Eastern cultures, such as ancient China, India, and the Islamic world, provided a unique perspective and influenced the development of philosophical schools. Furthermore, the reciprocal influence between Eastern and Western philosophical traditions demonstrates the interconnectedness of intellectual pursuits and the cross-cultural exchange of ideas. Understanding the role of Eastern mathematicians enriches our understanding of the intricate relationship between mathematics and philosophy and highlights the diverse contributions to human knowledge and understanding.

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Development of the Heart and Vascular System

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Annotation: This article describes the heart and vascular system, which is the main part of the human body. Currently, the origin of most diseases is related to this system. The heart is a muscular organ and has its own complex structure.

Key words: Heart, cardiovascular system, blood circulation, myopericardial layer, antioventricular, pulmonary veins, artery, myocardium, blood vessels, lymphatic vessels, blood circulation, circulatory circle, epithelium.

As time goes by, sciences such as medicine are developing more and more rapidly. This made it possible to study human anatomy and understand it on a large scale. Thanks to this, it became easier to identify and diagnose diseases. Unfortunately, the number of diseases has increased accordingly. It is found that the origin of most of these diseases is related to the cardiovascular system. Cardiovascular diseases are widespread all over the world, including in our country, Uzbekistan. Therefore, all doctors, especially cardiologists, therapists and general practitioners, have the right principles of timely diagnosis and should have deep knowledge about treatment and prevention of these diseases.

The heart is made of muscle and is the main member of the blood circulation system. It is located in the middle part of the chest and has a conical shape. On the 17th day of the embryonic development period, the double buds of the heart develop in the form of a pair of endocardial sacs in the neck area. The myopericardial layer is formed from the visceral mesoderm, which surrounds the endocardial sacs and forms the sacs of the heart. In the 3-week embryo, heart buds unite to form a two-layered heart tube. At the end of the 5th week, a wall growing from the bottom up is formed in the common ventricle, which divides the common ventricle into right and left. The stem of the common artery is also divided into two parts and a four-chambered heart is formed. There are chambers and ventricles of the heart, aorta, pulmonary artery, superior and inferior vena cava that drain into the right chamber, and pulmonary veins that bring blood to the left chamber. The chambers and ventricles of the heart are antioventricular are separated by valves, and during the systole of the ventricles, their plates are tightly closed, preventing blood from returning to the ventricles. At the entrance of the ventricles of the left and right ventricles, each of them has three convex sides facing the magisterial vessels, and semicircular pulmonary arteries and aortic valves are located. There is a small sinus between the vessel wall barrier. The main functions of the heart:

- * **Automation**
- * **Conductivity**
- * **Excitability**
- * **Contractility**

Automatism is a feature of the heart that produces electrical impulses without the influence of the external environment. Only the cells of the conduction system of the sinoatrial node and compartments and ventricles do not have this feature.

Conduction is the way impulses reach the contracting part of the myocardium through the fibers of the cardiac conduction system.

Excitability is the excitation of cardiac conduction cells and myocardium under the influence of external impulses.

Contractility is the contraction of the heart muscle in response to excitation.

Blood vessels of the heart. The heart is supplied with blood by the right and left coronary arteries starting from the ascending part of the aorta. As the heart arteries begin in the area of the sinuses of the septum, when the ventricles contract, their opening is closed by the valve plate. Therefore, blood passes to them when the ventricles are relaxed.

Function of cardiovascular system. The cardiovascular system performs very important functions in the body. Liquids, namely lymph and blood, flow inside blood vessels. Blood delivers oxygen and nutrients necessary for the life of cells and tissues. From them, substances unnecessary for the body are taken to the organs of excretion through veins. Depending on the fluid content of the veins themselves, they are divided into two parts: blood vessels and lymphatic vessels. Blood vessels reach almost all parts of the body, but not in the epithelium of the skin and mucous membranes, hair, cornea of the eyeball, and joints. Blood vessels are divided into three groups:

***A blood vessel leaving the heart is an artery**

***A blood vessel entering the heart is a vein**

*** Capillary blood vessel**

An artery is a blood vessel coming out of the heart, the wall of which is composed of three layers of membrane. Depending on their location in relation to organs, arteries are divided into surface arteries of organs and internal arteries of organs. If the branches of arteries join with other branches of arteries, it is called an anastomosis. If the arteries do not join with other vessels until they divide, they are called terminal arteries. With the change in the location of organs, their direction, length and starting areas also change. "changes. The vascular system of children differs from that of adults. The density of blood vessels of the child's organs is high compared to the area unit. In the first year of a child's life, internal blood vessels develop very quickly. There are more fibrous tissues in the wall of the aorta. In medium and small arteries, smooth muscle cells enlarge and appear anew. In early childhood, the abundance of elastic fibers ensures the elasticity of the vessels of the growing limb.

Veins are blood vessels that run opposite to arteries and carry blood from the organs to the heart. Blood does not flow in the veins, but collects in some parts of it (splenic veins, portal veins of the liver, veins of the legs). Veins are divided into trunk and limb veins. Depending on the location, superficial and deep veins are distinguished. The wall of the veins is thinner than the artery and consists of three layers. Depending on the structure of the wall, veins are divided into two types: veins with smooth muscle and veins without muscle.

Capillaries are very small blood vessels. They are so small that one red blood cell, that is, an erythrocyte, can barely fit through them. They facilitate the exchange of certain elements between blood and tissues, helps to connect the veins together. That's why you can see a lot of capillaries in tissues that are very active, such as muscles, liver and kidneys.

The circle of blood circulation is divided into two: large and small circle of blood circulation. The large blood circulation includes the aorta starting from the left ventricle of the heart, the arteries of the head, neck, arms and legs, the body, their branches, the microcirculatory vessels of the organs, small and large veins, flowing into the right lobe, includes superior and

inferior vena cava. The largest single artery of the blood circulation is the aorta, and its three parts are different:

***Ascending part of aorta**

***Aortic valve**

***Descending part of the aorta.**

A small circulatory circle ensures the exchange of gases between the blood in the pulmonary capillaries and the alveoli of the lungs. The small circulatory circle includes the pulmonary trunk starting from the right ventricle, the microcirculatory flow of the lungs with the branches of the right and left pulmonary arteries, and two right and two left Pulmonary veins are included.

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АФОРИЗМЫ В ПРЕПОДАВАНИИ РУССКОГО ЯЗЫКА

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Аннотация

В статье ведётся исследование вопросов использования афоризмов в преподавании русского языка. Автор приводит характеристику русских афоризмов и их происхождение. Приведено множество примеров паремий и крылатых слов.

Ключевые слова: *первоисточник, лексико-семантические единицы, паремии, ренессанская культура, парламентарии, индивидуализация, лингвострановедческий словарь.*

Возрастающая взаимосвязанность культур, взаимозависимость человеческих судеб в современном мире, осознание, в частности, единства русской и европейской культур должны естественным образом отражаться и на преподавании русского языка иностранцам, в первую очередь филологам-русистам.

Признание необходимости воспитания нравственности, духовной оседлости через всемерное поднятие культуры, и в первую очередь классической культуры, даже стремление некоторых начинающих политиков-парламентариев к цитированию забытых или дотоле неизвестных культурных первоисточников выражаются в периодической печати новым для современного иностранца, раскрепощённым русским языком. В частности, эти цитаты в большинстве случаев для нас, знакомые незнакомцы, лучше сказать дальние родственники, ибо, как правило, они восходят к классической культуре, этой древней, испытанной временем и вместе с тем современной для нас всех культур.

Европейская культура – это наша общая, единая историческая память. В её основе – древняя культура Восточного Средиземноморья, греко-латинское наследие, включающее иудейско-христианскую традицию. История этой огромной коллективной духовной работы, тысячелетних исканий человеческого ума и жизненного опыта поколений кумулятивно закреплена в европейских языках, а следовательно, и в нашей ежедневной коммуникативной речевой деятельности.

1. Вехи исторического развития нашего культурного сознания отразились в лексико-семантических единицах, общих для всех европейских языков.

Известно, что античные мифы, греко-латинский пантеон (боги и герои, небесное и подземное царства, оракулы и т.д.), как истоки любой

культуры, зиждутся на изначальном синкретизме, то есть семантическом единстве мифа – обряда – поэзии. Приведём некоторые паремии, свидетельствующие об этом: *золотой век, олимпийское спокойствие, вселенский потоп, Прометеев огонь, ящик Пандоры, панический страх, двуликий Янус, Геркулесовы труды, стоглавая гидра, Ариаднина нить, попасть в лабиринт, полёт Икара, химера; Одиссей, Цирцея, листригоны, между Сциллой и Харибдой, работы Пенелопы; Аргус стоокий, Цербер, Танталовы муки, Сизифов труд, бездонная бочка (Данаид); Аргонавты, Орфей и Евридика, Эдип и загадки Сфинкса; яблоко раздора, Елена Прекрасная, Ахиллесова пята, два Аякса, Троянский конь, дары данайцев; Эней и Дидона, сжечь свои корабли, вечный город; Кассандра, улыбка авгура* и т.д. Неистощимым запасом образных, крылатых слов и афоризмов являются поэмы Гомера «Илиада» и «Одиссея», а также поэма Вергилия «Энеида».

2. Если обратиться к греко-латинскому историко-литературному и научно-философскому наследию, то поток крылатых слов и афоризмов, принадлежащих поэтам, писателям, историческим лицам, а также имён литературных персонажей, ставших нарицательными, окажется нескончаемым. Греческая культура хлынула в Рим, и, как выразился Гораций, «Греция, взятая в плен, победителей диких пленила; в Лаций суровый искусства она принесла». Произошло органическое слияние религиозной, литературной, художественной греческой культуры с латинской.

На Западе некоторые афоризмы и крылатые слова ещё иногда звучат на греческом языке: *Эврика!* (Eureka!) Архимеда, *Всё течёт* (Pánta rhéi) Гераклита, *Познай себя* (Gnóthi sautón) – известное изречение, начертанное на храме Аполлона в Дельфах, и др. Образные выражения произносятся и на итальянском языке, например: *эзоповский (Эзопов) язык, фонарь Диогена* и т.д. Латинские афоризмы сохранились в западноевропейских языках в основном в оригинале: *Хлеба и зрелищ* (Panem et circenses); *Жребий брошен или перейти Рубикон* (Alea jacta est); *Пришёл, увидел, победил* (Veni, vidi, vici); *И ты, Брут!* (Quoque tu, Brute, fili mi); *Карфаген должен быть разрушен* (Carthago delenda est); *Каждый кузнец своего счастья* (Quisque faber est fortunae suae); *Разделяй и властвуй* (Divide et impera); *Мера всякому делу вера* (Est modus in rebus); *золотая середина* (aurea mediocritas); *Гора родила мышь* (Mons parturiens mus); *О вкусах не спорят* (De gustibus non est disputandum); *Если хочешь мира, готовься к войне* (Si vis pacem, para bellum). Хочется верить, что последний афоризм сегодня не в моде. Действительно, другие времена, другие нравы (o tempora, o mores!) – о времена, о нравы!

На латинском языке существует множество афоризмов средневековой, гуманистической, ренессансной культуры и новейшей научно-философской мысли: известно, что латинский язык был языком науки, университетского преподавания и международного общения примерно до середины XVIII в. Назовём только один пример: *Cogito, ergo sum* (Мыслью, следовательно, существую)

Декарта.

3. Неиссякаемый источник афоризмов – Библия. К ней часто обращаются писатели, учёные, журналисты, парламентарии, пытаясь придать символическое значение духовным исканиям, вечному и суетному в историческом процессе. И действительно, самая читаемая в мире книга лежит в основе европейского искусства и литературы. Достаточно сравнить общие для всех европейских языков паремии: *избранный народ; Ноев ковчег; голубь мира; манна небесная; земля обетованная, золотой телец; вавилонское столпотворение; чечевичная похлёбка; курить фимиам; фарисейство; око за око, зуб за зуб; избивание младенцев; блудный сын; зарыть талант в землю; много званых, но мало избранных; притча во языцех; Иуда предатель; умывать руки; Кто из вас без греха, пусть бросит в неё камень; Возлюби ближнего твоего как самого себя; буква убивает, а дух животворит; Голгофа; Воскресение* и т.д.

4. Эту культурно-языковую общность и следует систематически воссоздавать при обучении русскому языку иностранцев, в первую очередь филологов-русистов. Возникающий при этом перенос культурно-языковых знаний полезен и в практическом плане – учебный процесс становится более эффективным. Пути для реализации этого подхода могут быть разными: методика, как открытая система, допускает различные приёмы, стремясь в конечном итоге к индивидуализации обучения. Тем не менее, два приёма мы могли бы выделить как наиболее целесообразные.

5.1. Первый – это включение лексико-синтаксических единиц в практический курс русского языка. Способы их введения могут быть разными. Например, лексико-морфологический подход предполагает использование афоризмов для иллюстрации той или иной грамматической темы. Так, при изучении притяжательных прилагательных на *-ин, -ов* можно привести в качестве примера такой ряд: *Архимедов рычаг, Гордиев узел, Дамоклов меч, Соломоново решение, Ганнибалова клятва, Пиррова победа, Ариаднина нить, Иудин поцелуй* и т.д. При изучении лексики и морфологии в историческом аспекте используются такие примеры, как: *Мне отмщение, и аз воздам!; Несть элина, несть иудея; притча во языцех* и т.п. Наконец, чтение

художественного текста сопровождается разного рода лингвострановедческими комментариями. В этой связи полезными могут быть учебные пособия, содержащие актуальные лексико-семантические единицы, а также общеевропейский многоязычный лингвострановедческий словарь, составленный по материалам мифов и легенд греко-римского мира и Библия.

5.2. Второй приём ориентирован на филологов-русистов. Он предполагает проведение сжатого и целенаправленного краткого курса по русской афористике параллельно с описанием исторического развития русского языка, русской литературы и культуры. «Скрещение» здесь общеевропейского и национального русского выявляет особенности русской истории, влияния условий многонациональности на формирование русской культуры. В результате, по образному выражению Д.С. Лихачёва, обнажается «гигантский народный и культурный мост между Западом и Востоком».

На наш взгляд, в этом курсе следовало бы останавливаться на следующих звеньях исторического развития русского языка. Византийская христианская культура опасается влияния латинской культуры на язык и нравы. Но уже в XVII в., с организацией в Москве латинских школ, латинский язык распространяется как язык науки, что как бы создаёт предпосылки для влияния национальных литературных языков Западной Европы на русский язык.

Раскольническая среда «отстаивает права» просторечья, в которое, заметим, вплетены наиболее употребительные церковно-библейские фразы и образы, сравните, например, у Аввакума: «держись за христовы ноги», «само царство небесное валится в рот» и т.д.

Речь дворянского салона в царствование Екатерины уже подготавливает программу Н.К.Карамзина: «...включить русский литературный язык в систему европейской цивилизации». Анализ переводов с иностранных языков освещает способы сближения русской литературной речи с европейской языковой системой. Весьма поучительна в этой связи деятельность переводчиков, этих «почтовых лошадей просвещения», по меткому определению А.С.Пушкина. Творческие приёмы, к которым они прибегают при передаче новых реалий и отвлечённых понятий, имеют принципиальное значение, с ними целесообразно познакомить изучающих русский язык. Это, прежде всего, семантическое скрещение русских слов с французскими, описание значений, калькирование европеизмов и фразеологизмов – это французские заимствования, но вместе с тем и общероманские, в том числе итальянские.

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**THE DEVELOPING MYOPIA DISEASE AMONG PEOPLE, ITS ORIGIN,
PATHOGENESIS, SYMPTOMS, MODERN TREATMENT METHODS, AND
CURRENT COST OF PREVENTIVE WORK ON THE DISEASE.**

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Abstract: In modern times, as the environment is very polluted and various household technologies are developing, modern methods of treatment of these diseases are increasing. In this article, myopia disease, its types, origin, pathogenesis, symptoms and treatment through modern, natural methods are covered.

Key words: Myopia, causes, development, pathogenesis, symptoms, methods of treatment and prevention

Main part: Myopia, visual abnormality in which the resting eye focuses the image of a distant object at a point in front of the [retina](#) (the light-sensitive layer of tissue that lines the back and sides of the eye), resulting in a blurred image. [Myopic](#) eyes, which are usually longer than normal from front to rear, are somewhat more susceptible to [retinal detachment](#) than are normal or farsighted eyes. Severe myopia can be associated with other eye problems as well, most of which affect the retina or the choroid (i.e., pathologic [blood vessel](#) growth from the choroid). Myopia can be corrected by concave [lenses](#). Today, however, the use of [LASIK](#) (laser-assisted in situ keratomileusis) [surgery](#) has become common. In this procedure a hinged flap is made in the outer [corneal](#) tissue and lifted out of the way to allow an excimer laser (an ultraviolet chemical laser; also called an exciplex laser) to reshape the underlying tissue. The natural [adherence](#) properties of the replaced corneal flap negate the need for stitches. LASIK surgery is often preferred to [photorefractive keratectomy](#) (PRK), another type of laser-based surgery used to reshape the [cornea](#).

Causes of myopia: Nearsightedness is caused by a [refractive error](#). A refractive error occurs when your eye doesn't focus light correctly. If you're nearsighted, it means that the eye focuses light in front of your retina instead of onto it. The retina is the surface at the back of your eye that collects light. It changes the light into electrical impulses that your brain reads as images. When the eye focuses light in front of the retina, it can result in blurred vision. This happens because the shape of the eye is slightly abnormal. If you have myopia, it is likely that your eyeball is a little too long or your cornea is too rounded. The cornea is the clear covering on the front of your eye. These structural changes can cause your eye to focus incorrectly.

Pathogenesis: In newborns, [the eyelid](#) is small, and when the child is 9-12 years old, it takes a normal shape (see [Eye](#)). Sometimes the eyelid becomes elongated, and the distance [from the pupil to the retina](#) increases. In this case, the parallel rays coming from distant shapes do not reach the retina of the eye, they are refracted in the middle of the path and converge to the focus.

Symptoms: Having blurry vision when looking at objects in the distance is the main symptom of myopia. Others can include:

- tired eyes
- headaches
- squinting

If a person starts to experience these symptoms, they should speak to an optometrist, who can help determine whether or not they have myopia. The optometrist may recommend glasses or contact lenses to correct the issue. If a person's myopia is more advanced, an optometrist might recommend surgery.

Progression: Although myopia will not usually lead to other eye issues, it can get worse as a person ages. This is known as high myopia. A person with high myopia has an increased risk of developing additional eye conditions. These may include:

- cataracts
- glaucoma
- retinal detachment

Should vision loss or other eye-related issues occur, the condition becomes known as pathological myopia. This means that the level of myopia is so advanced that it has caused the back of the eye to begin breaking down. Refractive errors, including myopia, cause [3% Trusted Source](#) of blindness cases globally. One of the best things a person can do to slow the progression of myopia is to visit an eye doctor regularly. People with risk factors for myopia, such as diabetes or parents with myopia, may also benefit from visiting their eye doctor more often.

Diagnosis: An optometrist can perform a number of tests to check whether or not a person is nearsighted. One part of the eye examination will involve the person reading letters of different sizes from a chart at the other side of the room. The smaller the numbers, the harder they will be for someone with myopia to make out. The optometrist may also use a tool called a phoropter, which is made up of different lenses that they can position in front of the eye. When the phoropter is in place, the optometrist will shine light into it to measure how the eye focuses it. This will help them determine the right prescription for the glasses needed to correct the person's vision.

Management and Treatment

How is myopia treated? Glasses or contact lenses can correct myopia in children and adults. For adults only (with rare exceptions for children), there are several types of refractive surgeries that can also correct myopia. With myopia, your prescription for glasses or contact lenses is a negative number, such as -3.00. The higher the number, the stronger your lenses will be. The prescription helps your eye focus light on your retina, clearing up your distance vision.

Eyeglasses: The most popular way for most people to correct myopia is with eyeglasses. Depending on the degree of vision correction needed, you'll wear eyeglasses either daily or only when you need distance vision. You may only need glasses for driving. Some kids with myopia

may only need glasses to play ball, watch a movie or view the chalkboard. Some people may need to wear glasses constantly to see clearly. A single-vision lens will make distance vision clearer. But people over 40 who have myopia may require a bifocal or progressive lens to see clearly both near and far.

Contact lenses: Some people find that their distance vision is sharper and wider with contact lenses. A potential downside is they require more care to keep clean. Ask your provider which type might be right for your myopia level and other refractive errors.

Ortho-k or CRT: Some people with mild myopia may be candidates for temporary corneal refractive contact lenses that you wear to bed to reshape your cornea temporarily, long enough to see for your daily activities.

LASIK is a laser-assisted in situ keratomileus procedure, the most common surgery to correct nearsightedness. In a LASIK procedure, your ophthalmologist uses a laser to cut a flap through the top of your cornea, reshape the inner corneal tissue and then drop the flap back into place.

LASEK is a laser-assisted subepithelial keratectomy procedure. In a LASEK procedure, your ophthalmologist uses a laser to cut a flap through only the top layer (epithelium) of your cornea, reshape the outer layers, and then close the flap.

PRK is short for “photorefractive keratectomy,” which is a type of laser eye surgery used to correct mild or moderate nearsightedness. It may also correct farsightedness and/or astigmatism. In a PRK procedure, your ophthalmologist cuts off the front surface of your cornea and uses a laser to reshape the surface, which flattens it and allows light rays to focus on your retina. Unlike LASIK, the ophthalmologist doesn’t cut a flap, and your cornea will regrow its top layer in one to two weeks. PRK is better for people with corneas that are thinner or have a rough surface because it disrupts less corneal tissue than a comparable LASIK surgery.

Phakic intraocular lenses: These are an option for people who have high myopia or whose corneas are too thin for PRK or LASIK. Your provider places phakic intraocular lenses inside of your eye just in front of your natural lens.

Intraocular lens implant: This allows your ophthalmologist to surgically insert a new lens in your eye, replacing your natural one. This procedure happens before a cataract develops.

Vision therapy: This is an option if spasms of your focusing muscles cause myopia. You can strengthen the muscles through eye exercises and improve your focus. This treatment isn’t appropriate for everyone with myopia. After an eye exam, your ophthalmologist will let you know if it’s an option for you.

Conclusion: Myopia is a major public health concern, for which the advent of potential treatments methods for adequate correction of refractive error and decrease in disease progression is essential. Understanding the role of environmental and genetic factors in myopia onset and progression will allow for the development of more successful treatments and lifestyle

modifications. Although numerous studies remain unconventional in the treatment of pediatric myopia, atropine has been widely accepted worldwide in reducing myopia progression and axial elongation. Alternative myopia treatments, including other pharmacological, optical and surgical modalities, have shown promise, but require additional studies to validate its significance. Further research will be necessary to derive a conventional treatment modality capable of reducing personal and societal burden and arresting the progression of myopic disease including worsening refraction, axial elongation and retinal degeneration.

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USE OF FOOD ADDITIVES AND IMPROVERS IN THE PRODUCTION OF
CRUISERS

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Abstract: Article the possibility of using a food additive in the production of flour products is considered. Research results of studying the effect of additives-improvers of this series on the quality of sugar products are presented. It is established that the use of these additives improves the quality of products.

Keywords: chemical composition, quality, food additive, sugar products.

Being shelf- stable products, they are in great demand among people of all ages due to their high taste and nutritional properties. The correct organization of the production of these products and the economical use of its own raw materials are the priority tasks of the industry, the solution of which determines the quality of the product and its cost, and, consequently, the growth of profits of bakery enterprises, their competitiveness and the ability to enter new consumer markets.

A way to improve the consumer benefits of cracked products is to use various additives, including those of non-nutritive origin, positioned as improvers of the quality of these products [1,2,3].

Attention is paid to the production of natural additives from plant, including secondary, raw materials.

A food additive that is a universal improver of a new generation and consists mainly of natural components: soy flour, enzymes (amylase and heme and - cellulase), ascorbic acid, dextrose, as well as calcium carbonate and emulsifier [1,4,5]. The ratio and composition of the components of the additive provide an effect on the components of flour throughout the processes of dough preparation and baking, which significantly distinguishes it from previously known and widely used additives [1,2,6].

The influence of improver additives of the "Baraka-1000" series on the quality of butter crackers was studied.

Table 1.

Chemical composition and energy value of the food additive "Baraka -1000"

<i>Chemical composition</i>	<i>Mass fraction of substances in 100 g of product</i>
Water, g	3.11
Proteins, g	24.22
Fats, g	6.65
Carbohydrates, g	45.46
Dietary fiber, g	2.37
Ash, g	0.10
Energy value, cal	579.2

Under laboratory conditions, shortbread crackers "Dorozhnye" were prepared from first grade wheat flour using the sponge method according to the method described in the collection of recipes [7,8]. The dose of additive was 0.3...0.5% by weight of flour. The comparison samples were semi-finished products and products without additives [1,9,10].

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Samples of rusk slabs and finished products baked in laboratory conditions were analyzed for organoleptic, physicochemical and rheological parameters according to the methods given in GOST 7128-91, 5670-96, 8494-91, 8494-96 and laboratory workshop [11,12,13].

The fragility of crackers was determined using a Plastics device Bending Testers according to the instructions for the device. Determination of changes in the structural and mechanical properties of cracked boards during the curing process and finished products was carried out according to the method developed [14,15].

It was established that the dosage of the additive under study had a certain effect on the quality indicators of crackers. The results of the study of quality indicators of crackers and crackers are given in table. 2.3.

Table 2.

The influence of different dosages of "Baraka-1000" on the quality indicators of crackers and crackers

The name of indicators	Indicators of crackers and crackers prepared				
	Without additives	With the addition of improver, % by weight			
		1	3	5	7
<i>Rusk plates</i>					
Humidity, %	7.5	7.3	7.2	7.0	7.3
Acidity, degrees	4	4	6	8	8
Specific volume, cm ³ /100 g	40	45	56	60	52
<i>Crackers</i>					
Humidity, no more, %	2.0	1.8	1.9	2.2	2.0
Acidity, no more, degrees	6	8	8	0	3
Wetness in water at a temperature of 60 °C, 20	16	16	14	12	18
Fragility, units	5	5	3	9	3
Organoleptic evaluation, score	8	8	9	0	7

Baking data (Table 2) showed that adding an additive to the dough in an amount of 0.1 to 0.7% of the recipe amount of flour in increments of 0.2%, along with a positive effect on the dough ripening process, allows us to obtain finished products improved quality [16,17,18]. Thus, the products were distinguished by a well-developed thin-walled porosity structure, intense color of the crust, golden color of the crumb, pleasant taste and aroma that lasted longer than usual. Increasing the dosage of the studied additive by more than 0.7% is not advisable due to the deterioration of indicators characterizing the quality of the finished product. Thus, in products of this option, a decrease in the indicator of wetness in water was found on average by 1.7%, fragility - by 12.6% compared to the control [19,20,21].

Next, a comparative assessment of the porous structure of crackers and finished products prepared with the additive under study was carried out according to the following indicators: average shrinkage coefficient p , characterizing the moisture content of crackers and crackers;

respectively, porosity and density of freshly baked and cooled rusk boards N_{XCb} (%) and p_{XCb} (g/cm^3); porosity and density of the dry frame N_{XC} and p_{XC} ; average value of moisture shrinkage coefficient *and* in a narrow range of changes in moisture content; the number of pores per unit mass of the dried sample (Table 3).

Table 3.

The influence of the additive on the structural characteristics of slabs and breadcrumbs

Variants of samples prepared with the additive, in % by weight of flour	Structural and mechanical properties						
	crumb slabs				crackers		
	R_{XCb}	R_{XS}	R_{SK}	LN_{gen}	X_{XC}	N_{XC}	A
Without additive	0.182	0.151	0.822	47.0	0.94	0.82	3.1
0.1	0.176	0.134	0.593	39.0	0.89	0.77	2.29
0.3	0.170	0.130	0.691	40.0	0.92	0.80	2.32
0.5	0.170	0.130	0.784	45.0	0.95	0.83	2.80
0.7	0.181	0.140	0.756	43.0	0.93	0.81	2.41

Analysis of the results obtained showed that the slabs and crackers baked from them, prepared with the addition of PAP and EAP, had certain differences [22,23]. The highest quality of the porous structure was observed in samples prepared with the addition of 5% PAP and 25% EAP. In these variants, the slabs and crackers were characterized by more uniform and thin-walled porosity, had the smallest pore area according to the probability distribution $\delta_f = 0.25-0.26 \text{ mm}^2$, and had good structural and mechanical properties [24,25,26].

Thus, the products were distinguished by a well-developed thin-walled porosity structure, intense color of the crust, golden color of the crumb, pleasant taste and aroma that lasted longer than usual. Increasing the dosage of the studied additive by more than 0.7% is not advisable due to the deterioration of indicators characterizing the quality of the finished product. Thus, in products of this option, a decrease in the indicator of wetness in water was found on average by 1.7%, fragility - by 12.6% compared to the control [27,28].

Samples with 1, 3, 7% PAP and 50% EAP also had a fairly good structure. The samples with 10% PAP were of comparatively worse quality [29,30]. These samples clearly differed in structural and mechanical properties ($LN_{total} = 45$ inc. units, and $A_{Htot} = 47$ inc. units, $P_{CS} = 0.78 \text{ g/cm}^3$ and $p_c = 0.82 \text{ g/cm}^3$), largest pore area probability distribution ($S_{cp} = 0.55-0.56 \text{ mm}^2$ and $S_{cp} = 0.44-0.45 \text{ mm}^2$).

The difference in the quality of the porous structure of slabs and crackers is due to changes in the properties of the dough [31,32,33].

The highest quality of the porous structure was observed in samples prepared with the addition of 0% EAP. In these options, the slabs and crackers were characterized by more uniform and thin-walled porosity, had the smallest pore area according to the probability distribution (Fig. 12) $S_{av} = 0.25-26 \text{ mm}^2$, good structural and mechanical properties ($H_{total} = 39$ units approx.; $p_{kC} = 0.59 \text{ g/cm}^3$) [34,35,36].

The samples with 1, 3, and 7% PAP and 50% EAP also had a fairly good structure. The samples with 10% PAP were of comparatively worse quality. These samples clearly differed in structural and mechanical properties ($LN^{\wedge} = 45$ units approx., and $A_{Ntot} = 47$ units. approx., p

$K_S = 0.78 \text{ g/cm}^3$ and $p_{K_S} = 0.82 \text{ g/cm}^3$, the largest pore area probability distribution ($S_{cp} = 0.55-0.56 \text{ mm}^2$ and $S_{cp} = 0.44-0.45 \text{ mm}^2$). The difference in the quality of the porous structure of slabs and crackers is due to changes in the properties of the dough [37].

Analysis of the data obtained showed that the quality of rusk slabs and crackers was not inferior to the control variant when the test powder was added to the dough in an amount of 5% by weight of flour. Rusk slabs and ready-made crackers were distinguished by increased volumetric yield, regular shape, glossy surface, fairly developed porosity structure, and characteristic taste and aroma. Rusks of this variant had relatively high swelling (19.8% higher than the control value) and reduced fragility [38].

Rusk slabs and ready-made crackers were distinguished by their higher volumetric yield, regular shape, glossy surface, fairly developed porosity structure, and characteristic taste and aroma. Rusks of these variants had a relatively high swelling (19.8% higher than the control value) and reduced [39].

It was found that increasing the dosage of PAP by more than 7% to the recipe amount of flour and EAP by more than 50% to the calculated amount of water leads to a slight darkening of the crumb of the products and a deterioration in its porosity structure, as well as to the appearance of a weak taste and smell of the powder. This allows us to assert that when using these additives in dough in quantities exceeding the recommended values, it is advisable to add prescription components that can mask these properties of the finished products [40,41,42].

It was found that increasing the dosage of PAP by more than 7% to the recipe amount of flour and EAP by more than 50% to the calculated amount of water leads to a slight darkening of the crumb of the products and a deterioration in its porosity structure, as well as to the appearance of a weak taste and smell of the powder. Rusk slabs and ready-made crackers were distinguished by increased volumetric yield, regular shape, glossy surface, fairly developed porosity structure, and characteristic taste and aroma. Rusks of this variant had relatively high swelling (19.8% higher than the control value) and reduced fragility [44,45].

The use of improvers of the Baraka -1000 series has the following technological advantages:

- Reducing the duration of the technological process.
- Reducing the consumption of dry substances during fermentation .
- improver components form a well-developed, strong gluten structure that can increase the gas-retaining properties of the dough.
- Improving the rheological properties of dough.
- Increased dimensional stability of the dough piece during fermentation, no blurring effect .
- Increased dough resistance to mechanical stress
- Increasing the activity of yeast by providing the amount of sugars necessary for life. This applies to bread with low sugar content (up to 2%).
- Increasing the water-holding capacity of the dough and increasing the yield of finished products by 410%, extending the period of preservation of bread freshness (up to 3 days), reducing the lumpyness of the crumb.
- The presence of the effect of "fermentation" of finished products, the absence of an "empty" aroma of bread.

Thus, the products were distinguished by a well-developed thin-walled porosity structure,

intense color of the crust, golden color of the crumb, pleasant taste and aroma that lasted longer than usual. Increasing the dosage of the studied additive by more than 0.7% is not advisable due to the deterioration of indicators characterizing the quality of the finished product [46,47].

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Психологическая защита как феномен человеческой психики.

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Аннотация.

Защитные механизмы есть у каждого человека и как они влияют на его поведение и отношения с людьми вокруг зависит от индивидуальности человека. Вместе со специалистом человек пытается понять, какой именно конфликт его беспокоит и от чего именно защищается его психика. Следующий этап — попытка получить другой опыт, который способен модифицировать этот конфликт и предложить более продуктивный способ с ним справиться. В данной статье мы говорим о бессознательной психологической защите.

Ключевые слова.

Защитные механизмы, комфорт, дискомфорт, агрессия, психосоматика, рационализация.

В современных условиях человек не может избежать воздействия стрессогенных факторов: езда по городу в час пик на работу, сложное задание, разговор с начальником, пролитый на костюме кофе и многое другое, чего никак нельзя избежать. «Если не можешь изменить ситуацию, измени отношение к ней» – советуют психотерапевты. А этому следует учиться.

«Для преодоления стрессовых ситуаций существуют сознательные и бессознательные механизмы. Осознанные механизмы называются копинг - механизмами, бессознательные механизмы – это психологическая защитная реакция.

Ко второй группе механизмов преодоления стресса относятся механизмы психологических защит, которые направлены на смягчение действия психогенного фактора, на снижение личностной тревоги и восстановление психологического гомеостаза. Психологические защитные реакции являются бессознательными. Они были описаны З. Фрейдом и классифицированы его дочерью Анной Фрейд. Психологические защитные реакции срабатывают мгновенно при возникновении проблемы или стрессовой ситуации, они ограждают сознание человека от неприятной для него информации, отрицают ее, искажают или фальсифицируют действительность, делают менее обидной, болезненной, травмирующей психику.

Далее рассмотрим формы бессознательных защит.

Бегство. В ситуации бегства человек настолько увлекается любимой деятельностью, что направляет все свои душевные и умственные силы только на нее. Эта деятельность спасает его от неразделенной любви, от неуверенности в себе, помогает забыть о проблемах и личностных недостатках. Конечно, такой человек может продемонстрировать выдающиеся результаты в своей сфере, однако ему не удастся завести себе приятелей или друзей, потому что его личность все это время развивалась дисгармонично.

Отрицание. Например, жена не замечает отчужденности мужа и вместо того, чтобы поговорить, делает вид, что все хорошо. В результате муж уходит к другой. Или родители не замечают, что сын пристрастился к наркотикам. Итог: у сына тяжелая наркотическая зависимость. Почему так происходит? Люди попросту не позволяют себе думать, что в их семье может случиться такое.

Рационализация. Этот механизм помогает найти объяснения собственному неблагоприятному поступку. Благодаря рационализации можно отгородиться от «злого мира» и почувствовать себя царем на фоне ничего не понимающих людей.

Подавление. Выражается в том, что мы можем забывать некоторые чувства, факты, события и людей, которые принесли нам в свое время боль, страдания или просто какие-либо неприятные эмоции.

Вытеснение. Также связано с особым механизмом работы памяти. Вытеснение похоже на подавление, за исключением того, что событие забывается не полностью. Из памяти стирается наиболее травмирующая часть.

Помнить больше хорошее, чем плохое, – это естественная функция психики. Но вот особо чувствительные люди, наоборот, запоминают только плохое. Это приводит к гнетущему состоянию, депрессии, мучительным воспоминаниям травмирующих ситуаций: «А вот он мне сказал то-то, а поступил так-то. Как он мог?»

Проекция. При проекции человек, видя свои недостатки, не желает их признавать, но замечает их у других. Таким образом, человек проецирует свои пороки и слабости на других людей. Согласитесь, как же трудно признаться себе, что мы кому-то завидуем, и как же легко увидеть эту зависть у другого человека!

Проецировать можно чувства, мысли и даже поведение. Так, обманщику кажется, что все вокруг шулеры и хотят его обмануть, жадному человеку окружающие видятся скупыми, а нуждающийся в деньгах будет ненавидеть людей с низким достатком.

Кстати, у проекции есть не только негативные, но и позитивные проявления. Например, если вам кажется, что все вокруг чудесно и замечательно, это означает, что вы находитесь в гармонии с самим собой; если вы видите в лице коллег только друзей, это означает, что вы добрый и общительный человек. Недаром говорят: «Улыбнись миру - и мир улыбнется тебе».

Замещение. Выражается в виде удовлетворения неприемлемого желания иным способом, допускаемым обществом. Например, один человек за что-то сердится на другого и хочет ему отомстить. Поскольку месть порицается обществом, человек мстит своему врагу обидными шутками. Если же тот обижается, он тут же просит извинения, говоря, что не хотел никого обидеть, это всего лишь шутка.

В офисной жизни скрытая враждебность может проявляться в виде гиперконтроля над подчиненными. Начальник находит искусственный повод, чтобы выплеснуть свою агрессию на подчиненного, - начинает его чрезмерно контролировать, придирается, обвиняет, что он ничем не занимается, и т.д.

Идентификация. Выражается в отождествлении себя с каким-либо человеком, в присвоении его личностных качеств себе, в возвышении себя до его образа. К примеру, школьник стремится быть как все, старается слиться со своей компанией. Если в компании все носят дорогие джинсы, он будет выпрашивать их у родителей; если в компании принято курить, он обязательно пристрастится к этой пагубной привычке. Желание быть похожим на окружающих создает у подростка иллюзию защищенности.

Также социальная мимикрия проявляется в желании быть похожими на людей, которых мы опасаемся или от которых зависим. Очень часто люди, которых обижают, начинают копировать поведение своих обидчиков. Одним эта идентификация нужна с

целью стать такими же «волевыми» и «сильными», а другим – с целью отыграться на более слабых. В психологии этот механизм называется «идентификация с агрессией».

Боязнь нового. Вы замечали когда-нибудь, что ваши близкие, родные и друзья вроде бы просят вашего совета, но на самом деле в нем не нуждаются? Такие люди вообще опасаются узнавать что-то новое, ведь нужно перестраиваться, пересматривать свои взгляды на жизнь, сомневаться в ранее полученных знаниях, теориях и мнениях. А потому такие люди подсознательно защищаются от советов – много говорят сами и не дают вам высказаться, жалуются и вас не слушают (синдром поиска жилетки), капризничают, протестуют (говорят, что вы придумываете неподходящие советы), обвиняют вас в некомпетентности, обещают последовать совету потом, но не выполняют обещания.

Отчуждение. Выражается в разделении нашего «Я» на несколько частей и последовательном их использовании. Такой процесс происходит в моменты, когда человек испытывает сильную физическую или душевную боль. Например, смена жилья, работы, переезд на другой город и т.д.

Искусственные психостимуляторы. Алкоголь, табак, наркотики не только сводят здоровье на нет, но и создают иллюзию «управления» своим психоэмоциональным состоянием. Возникшую проблему они, конечно же, не решают.

Существуют естественные бессознательные защиты, которые не несут вреда и помогают справиться с напряжением. Их называют *зрелыми бессознательными защитами*.

Плач – природная и естественная защитная реакция человека на стресс. Каждый знает, что, поплавав, на душе становится сравнительно легче. Все дело в физиологических процессах, происходящих в этот момент в организме.

Ученые считают, что слезы уменьшают боль, заживляют небольшие ранки на коже, защищают кожу от старения. Кроме того, плач нормализует кровяное давление и оказывает антистрессовое воздействие;

Сон. Многим людям после сильного стресса требуется продолжительный сон, чтобы восстановить душевные и физические силы. Так работает механизм компенсации. Так что если ваш близкий – любитель поспать, не будите его без видимых на то причин, возможно, его организм сейчас занят переработкой стресса;

Сновидения. В прошлом номере * мы говорили о том, как сновидения помогают нам справляться с накопленным в течение дня напряжением, что во сне моделируются ситуации, в которых вы можете проявить себя сильным, смелым и решительным, а значит, проработать все свои стрессы и победить страхи. Только вот этот механизм подключается не в реальном, а в воображаемом мире. Следовательно, человек меньше страдает и не оказывает отрицательного влияния на окружающих в отличие, например, от проекции или рационализации;

Сладости - как известно, поднимают уровень глюкозы в крови, а это способствует выработке гормона радости – эндорфина. Поэтому умеренное потребление сладостей ведет к переработке стресса. Главное – не увлекаться и соблюдать правила здорового питания;

Сублимация – трансформирование нежелательных, травмирующих и негативных переживаний в различные виды конструктивной и востребованной деятельности (спорт, творчество, любимую работу). Чем больших успехов человек достигает в любимой деятельности, тем устойчивее становится его психика;

Альтруизм. Недаром говорят: «Если тебе плохо, помоги тому, кому еще хуже». На самом деле все несчастья познаются в сравнении. Когда мы видим, что другому человеку приходится намного хуже, собственные проблемы кажутся мелочными. К тому же любая помощь нуждающемуся помогает нам почувствовать себя нужным, а это наилучшим образом спасает от стресса;

Юмор. Как известно, вовремя сказанная шутка разряжает обстановку и улучшает отношения между собеседниками. Учитесь смеяться над собой и над своими проблемами. Попробуйте ассоциировать свою проблему с какой-либо шуткой, переложите ее в веселую историю, посмотрите смешные фотографии, скачайте доброе кино. И главное – чаще улыбайтесь, ведь смех продлевает жизнь.

Смех. Смех в стрессовой является защитной реакцией психики, помогающей справиться с дискомфортом. Смех без причины – признак человека, склонного к неврозам. В тревожные или грустные моменты такой нервный смех является произвольным. Человек не испытывает положительных эмоций, а его психика таким образом защищается. Все дело в том, что смех помогает справиться людям с некомфортной ситуацией. С точки зрения психики, если мы улыбаемся или смеемся, то вокруг не творится что-то страшное. Так, смех способствует выходу из стресса, снижая нагрузку на психику.

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PORTABLE DRIP IRRIGATION SYSTEM

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Abstract: In this article, 80% of the consumed water resources are formed in the territory of neighboring countries, the effective use of Uzbekistan's water resources, especially the wide introduction of water-saving systems of crop irrigation and the use of modern technologies in the management of water resources in order to alleviate the growing water shortage in recent years. In addition, the article also provides information about the new portable irrigation system.

Key words: drip irrigation, water resources, food, portable irrigation system, tractor, water tank, water tank lid, modern technologies.

The demand for water resources is increasing year by year due to factors such as population growth, increased food demand, expansion of industrial production, and climate change in the countries of the world. As a result, in many regions of the world, there is a trend of water resource scarcity.

It is known that the agricultural sector is the largest user of water in the whole world. Therefore, the entire scientific community emphasizes the efficient use of water in agriculture, especially in irrigated agricultural fields, including the widespread introduction of water-saving technologies, as the most priority way to alleviate water shortages.

Effective use of Uzbekistan's water resources, where 80% of the consumed water resources are formed in the territory of neighboring countries, especially in order to alleviate the growing water shortage in recent years, to widely introduce water-saving systems of crop irrigation and to expand the possibilities of using modern technologies in water resources management, or It is permissible to admit that it is taking the initiative among the countries of the region.

In the last five years, President Sh.Mirziyoyev passed a number of decrees and decisions on the development of the water sector, the introduction of water-saving technologies, and as a result of them, allocating state subsidies to encourage agricultural producers who introduced new irrigation technology. The creation of a number of benefits for the producers of agricultural goods made a fundamental turn in the development of the irrigated agriculture direction. As a result of the attention of the state leadership, the improvement of the necessary legal norms and the consistent application in practice, the scope of introducing water-saving irrigation systems in our country has increased dramatically in recent years. In 2021 alone, the areas where water-saving technologies have been introduced will increase by 5 times and cover 22% of the total irrigated areas, and in the next five to seven years, this indicator is set to reach 50%. The Parliament of our

country is also conducting large-scale work on improving the legislation in the field of water management.

As the head of our state emphasized the need to approach every issue with science and experience, advanced modern technologies were brought from foreign countries, and their specialists were involved. Due to the year-by-year expansion of the areas where these technologies are introduced, many enterprises have been established in our country, and the production of irrigation system equipment has been started in local conditions.

Now, there is a need for local personnel who build modern water-saving irrigation systems and provide them with service services. At the same time, the issues of creative approach to these irrigation systems, their improvement, adaptation to the unique soil and climate conditions of Uzbekistan are becoming more relevant day by day, and this is required by life itself.

At the present time, when climate change has become a global problem, the efficient use of water resources has become the agenda. In addition, the demand for water in Uzbekistan is increasing due to the wasteful use of natural water, which may exhaust the limited resources of mankind, the continuous increase in the number of people and consumption according to the laws of population, and high economic growth rates.

The growing population of the world, including Uzbekistan, causes the demand for food products to increase year by year. In a situation where the available amounts of water resources, which are the main source of food production, are decreasing, the issue of developing effective methods of their use, economical use of existing water resources is becoming more urgent day by day. In such conditions, the use of water-saving technologies of crop irrigation is being widely implemented in most countries of the world in order to use water sparingly without wasting water. In this regard, countries such as Israel, Japan, Jordan, China, USA, Italy, Turkey, Greece, Australia and India have achieved great results.

Located in the center of the Asian continent, thousands of kilometers away from the oceans and seas, our beautiful homeland is located in a dry and hot region, which is one of the only 2 countries in the world that requires crossing the borders of at least 2 more countries to reach the world ocean. As mentioned above, in the conditions of the Republic of Uzbekistan, where the waters of the main rivers flow from trans-border areas, the issue of effective use of water resources is considered a particularly urgent issue.

Due to the excessive use of water by the extensive agriculture of our country, the problem of shortage of water resources primarily affects the water supply of irrigated areas, and this effect is increasing year by year. In such conditions, the use of water-saving technologies of crop irrigation will further increase the value of these blessings.

For this purpose, with the initiatives of the President, in the last five years, the state has paid great attention to the widespread introduction of water-saving technologies of crop irrigation. In particular, a number of benefits, such as exemption from taxes and allocation of subsidies by the state, were created for agricultural producers who introduced water-saving irrigation systems. As a result, the areas where water-saving technologies are used in our republic are expanding year by year. In this process, of course, there is an increasing need for qualified national specialists who implement water-saving irrigation systems, use them, and provide service.

Training of qualified local personnel for the field of water management, improvement of their training system, development of mutual cooperation between education, science, and

production sectors and development of scientific achievements and know-how the need to introduce the issue is one of the most important strategic tasks of our country.

In the conditions of Uzbekistan, which is located in an arid region, agriculture is the sector that consumes the most water. About 90% of available water resources are used for agricultural production. In recent years, the state in Uzbekistan has given great importance to the effective use of existing water resources based on the widespread introduction of water-saving irrigation technologies in the irrigation of agricultural crops.

In particular, according to the Decree of the President of the Republic of Uzbekistan No. PF-6024 of July 10, 2020 «On approval of the concept of water management development of the Republic of Uzbekistan for the years 2020-2030», the areas where water-saving irrigation technologies are used in our country 2030 to reach 2 million hectares by 2021, drip irrigation system according to the Decision of February 24, 2021 PQ-5005 «On approval of the strategy for the management of water resources and development of the irrigation sector in the Republic of Uzbekistan for 2021-2023» the tasks of rapidly expanding the cultivated areas and bringing them up to 800,000 hectares in 2023 have been set.

As a result of comprehensive support at the level of the state leadership, effective work has been carried out in recent years to raise the living standards of the country's population to higher levels by increasing the quantity and quality of the harvest obtained from irrigated areas based on the effective use of water resources.

Taking the above into account, as a result of our research, we have developed a small portable drip irrigation system for irrigation in areas where water does not reach and uneven terrain (Fig. 1). This unit consists of a tractor, water tank, water tank cover, truck, water pump and drip pipes.

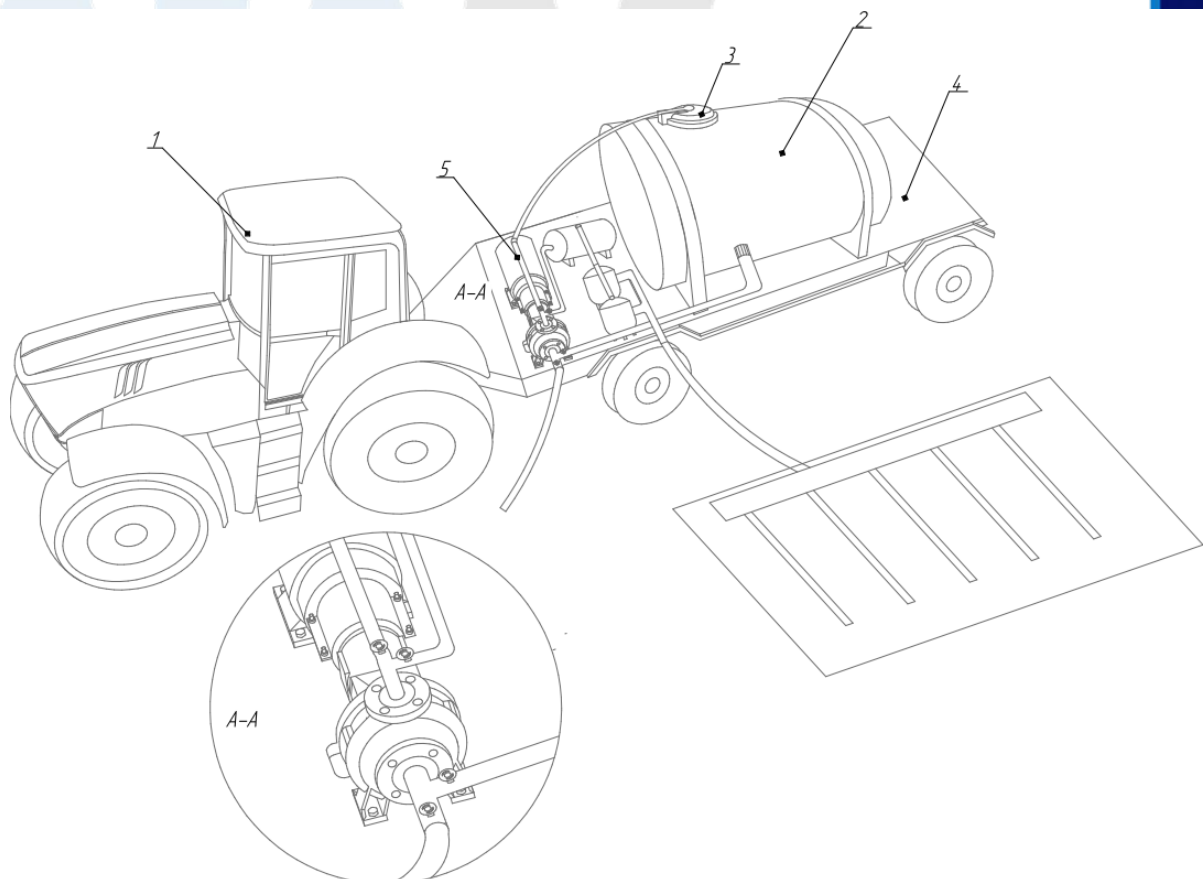


Figure 1. General view of the portable drip irrigation unit.

1 - tractor, 2 - water tank, 3 - water tank lid, 4 - truck, 5 - water pump

The portable drip irrigation unit is designed to water crops on any land at different times. 5000 liters of water goes into the water tank of this irrigation unit. When irrigating land with this unit, water is supplied to the drip pipes through a water pump. If the water in the water tank runs out during watering, it is removed through the removal device located above the pump. After that, it is possible to bring water from the source to the tractor as aggregated water.

Therefore, one of the most promising directions for the development and stability of agricultural production is the cultivation of crops in an intensive way, which aims to achieve the highest possible efficiency of the material and financial resources spent on crop care. In particular, the most correct way to effectively use water resources used in crop care is the widespread use of water-saving technologies of irrigation methods. The portable drip irrigation system offered by us allows to achieve such a goal.

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Abstract: *The outbreak of the COVID-19 virus has led to significant challenges in managing the disease. With the rising number of cases worldwide, understanding effective strategies for disease management is crucial. This article delves into the various aspects of managing COVID-19*

Keywords: *symptoms, potential treatments, analysis, statistics, people infected*

Introduction: A novel coronavirus inflicting extreme acute respiratory disorder emerged these days in Wuhan, China. The World Health Organization (WHO) has declared the coronavirus outbreak to be a public fitness emergency of worldwide issue on 31 January 2020. As of 23 February 2020, 2445 sufferers have died and 77 041 validated instances had been identified in China and an extra 1724 have been demonstrated in 29 different countries.

On eleven February 2020, the International Committee on Taxonomy of Viruses named the new coronavirus “severe acute respiratory syndrome-related coronavirus 2,” or SARS-CoV-2, whilst the World Health Organization named the sickness coronavirus sickness 2019 or COVID-19.

The novel coronavirus belongs to the β genus coronavirus. It has enveloped, positive-strand RNA viruses, with a diameter from 60 to 140 nm. Current lookup suggests it has greater than 85% homology with SARSr-CoV. However, many necessary questions stay unanswered. For example, there is no sure bet about the supply of the virus and outbreak, the time span of the sufferers discharging infective viruses, and the pathogenesis.

The incubation duration of COVID-19 is 1 to 14 days, generally three to 7 days. Huang et al said imply incubation time is about 5 days (95% self belief interval, four to 7 days). The frequent signs of the sufferers contaminated with COVID-19 encompass fever (83%-98.6%), cough (46%-82%), and fatigue (11-69.6%) early on the medical course.

Some sufferers may also have shortness of breath (breathlessness/dyspnea), muscle soreness (myalgia), arthralgia, headache, chest pain, chest discomfort, sore throat (pharyngalgia), nasal congestion (rhinobyon), rhinorrhea, throat congestion, tonsil swelling, growth of lymph nodes, anorexia, diarrhea, nausea, stomach pain, vomiting, coronary heart palpitations, hemoptysis, chill, dizziness, expectoration, and so on.

The standard preliminary signs and symptoms of COVID-19 are especially fever, cough, and fatigue. However, some sufferers existing different signs comparable to influenza or no apparent symptom of ailment onset. Nevertheless, these extraordinary preliminary signs must be paid the equal interest in the analysis as the standard symptoms.

After the contamination of COVID-19, the aged and sufferers with continual underlying ailments are at the absolute best hazard of the circumstance turning into greater serious. Death instances have been extra frequent in the aged and sufferers with continual underlying diseases.

Approximately one-third to one-half of extreme sufferers had underlying comorbidities, such as diabetes, hypertension, and cardiovascular disease. In any other learn about of sufferers in intensive care unit (ICU) and non-ICU, sufferers in ICU have been older (median age sixty six vs 51) and had extra comorbidities (72% vs 37%).

Not solely are aged folks and people with underlying persistent clinical stipulations affected extra severely by way of COVID-19, pregnant girls are at a greater risk, as well. During

pregnancy, female will have some immune changes, which may additionally lead to the sensitivity and severity of infectious diseases.

Compared with the popular person population, pregnant female are extra probable to have untoward outcomes. During the present day outbreak of COVID-19, pregnant girls have a excessive threat of creating extreme infections.

The hematology examination consists of whole blood count, electrolytes, blood gasoline analysis, coagulation test, liver and kidney function, C-reactive protein, erythrocyte sedimentation rate, procalcitonin, lactate dehydrogenase, creatine kinase, myocardial enzyme, myoglobin, lactate, D-dimer, inflammatory factors, urine events test, stool activities test, and so on.

In these studies, it used to be located that most sufferers had regular or lowered white blood cells or lymphopenia in the early segment of the disease. Most sufferers displayed extended C-reactive protein degree and erythrocyte sedimentation rates, and regular procalcitonin levels. Severe sufferers have been extensively laboratory abnormalities as in contrast with nonsevere patients.

It is crucial to rapidly gather and check fabulous specimens of suspected instances underneath the education of laboratory experts. As samples may additionally require a couple of exams to affirm the 2019-nCoV, adequate scientific cloth is advocated when sampling. The knowledgeable consent of the affected person or guardian is required at some point of pattern collection, testing, and viable future research.

The specimens encompass respiratory specimens (nasopharyngeal and oropharyngeal swabs, bronchoalveolar lavage fluid, inner-tracheal aspirate fluid, nasopharyngeal aspirate fluid, or nasal lavage fluid, sputum, biopsy or post-mortem tissue, such as lungs, bronchoalveolar fluid Lavage fluid, trachea, and tracheal aspiration fluid) or blood or urine. The specimens had been examined through real-time polymerase chain response or genetic sequencing.

The aim of respiratory aid is to allow the affected person to be correctly oxygenated and ventilated. Respiratory aid ensures that the respiratory fame of the affected person does now not deteriorate. If the motive for respiratory misery can't be shortly recognized or corrected, the affected person must be furnished respiratory help and per chance mechanical air flow earlier than the entire respiratory collapse.

Respiration need to be monitored generally due to the fact it is linked to results of treatment. High-flow nasal oxygen or noninvasive air flow ought to be used in chosen sufferers with hypoxemic respiratory failure.

Supplemental oxygen remedy Patients with moderate to reasonable pulmonary insufficiency can also solely want supplemental oxygen and an potential to clear secretions on their very own to attain this goal. Many sufferers with hypoxemia can be properly supported by using supplemental oxygen. Patients have to be given solely the minimal guide wished to keep the required oxygen levels, as hyperoxia or extra oxygen has been viewed a chance issue for terrible outcomes.

The COVID-19 sufferers do now not want supplemental oxygen, solely the sufferers with moderate respiratory failure have been encouraged supplementary oxygen. 25 During the remedy process, we ought to screen SpO₂, respiratory frequency and different warning signs of patients, and hold SpO₂ in 93% to 95%.

High glide nasal cannula The excessive go with the flow nasal cannula (HFNC) has currently come into vogue as a technique of imparting respiratory guide and may additionally be beneficial for sufferers with kind two respiratory misery associated to expanded work of breathing.

HFNC is encouraged for moderate to average hypoxemic respiratory failure. If it is tough to enhance oxygenation after non-stop HFNC therapy for 24 hours, noninvasive effective strain air flow or even invasive superb stress air flow is recommended.

Invasive advantageous strain air flow Invasive tremendous strain air flow is an superb therapy for extreme respiratory failure. Pulmonary shielding air flow marked by using low tidal extent and a appropriate effective stop expiratory stress (PEEP) is a traditional remedy for extreme pneumonia secondary to acute respiratory misery syndrome (ARDS).

Conclusion

Managing the disease in patients infected with the COVID-19 virus requires a comprehensive approach. By utilizing a high number of transition words, active voice, sentence variety, moderate paragraph length, and concise terminology, healthcare professionals can effectively communicate disease management strategies. This empowers patients, reduces complications, and optimizes their recovery process. Adopting these practices is crucial in alleviating the global burden of the COVID-19 pandemic.

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Exploring BEAM Robotics for Adaptive and Energy-Efficient Solutions

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Abstract:

In the rapidly evolving landscape of robotics, engineers and roboticists continually strive to develop intelligent robots capable of versatile tasks. BEAM robots represent a unique class designed with inspiration from biological principles of artificial intelligence. This innovative approach seeks to emulate the functionality of biological organisms, differentiating itself by eschewing microcontrollers and software in favor of simple electrical circuits. The BEAM philosophy centers around crafting uncomplicated mechanisms to address intricate problems, resulting in robots with distinct advantages over their traditional counterparts. This paper explores the ongoing developments in BEAM robots, emphasizing their energy-efficient nature, minimalist design, and adaptability to the environment. Notably, some BEAM robots exhibit self-organization, demonstrating the potential for collaborative problem-solving without centralized control. The practical implementation of BEAM robotics involves careful component selection. The schematic diagram illustrates the assembly of a BEAM robot, emphasizing the importance of mechanical design to ensure autonomy. Looking ahead, the paper outlines future enhancements for BEAM robots, including the implementation of an energy analysis system. This system will enable the robot to autonomously transition into a sleep mode during periods of insufficient energy, contributing to prolonged autonomy in varying environmental conditions.

Key words: BEAM Robotics, Biological principles, Energy efficiency, Autonomous robots, Adaptability, Sustainable technologies.

Introduction

The modern world is full of technological advances, and robotics is no exception. Engineers and roboticists are working tirelessly to create new intelligent robots capable of performing various tasks. Currently, many researchers are creating a variety of robots. At the same time, they use a wide variety of approaches, each of which has its own advantages and disadvantages, use different methods and theories [1]-[17].

Among all approaches, we can highlight BEAM robotics. BEAM (Biology, Electronics, Aesthetics and Mechanics) robots are a class of robots designed with biological principles of artificial intelligence in mind. This approach to robot design is inspired by biological systems and aims to create robots that can function like biological organisms. It is based on the idea of designing simple mechanisms to solve complex problems, and its main feature is the absence of microcontrollers and software. Instead, BEAM robots control their actions using simple electrical circuits. This approach turns them into "living" robots with interesting advantages over traditional robots.

Related works

The direction of BEAM robotics is very promising. Many scientists see it as very promising for the development of robotics [18]-[21].

In [22] authors note that inflated continuum robots are promising for a variety of navigation tasks, but controlling their motion with a small number of actuators is challenging.

Researchers in [23] also use BEAM robots. Their study showed the intriguing finding that participants displayed more fear of and competed slightly more against robots that matched their number.

Papers by Boya-Lara, C. and co-authors [24]-[26] propose to use BEAM robotics to enhance the STEM knowledge and skills of engineering students in the electrical, electronic, and mechanical domains.

Conference materials [27] present an optimized solution to solve the existing defects of the product and complete the solution that meets the modern market demand, aesthetic patterns, and production methods. This solution uses BEAM concept.

Scientists in [28] developed an extremely simple quadruped robot, which is able to walk with no form of software or controller. Instead, individual leg movements are triggered directly by switches on each leg which detect leg loading and unloading.

In [29] researchers consider an area of humanoid robots. They note this area is an emerging topic in the world of robotic research owing to their usefulness in replacing humans in various tasks. They write that solar PV cells have been frequently used in BEAM (Biology, Electronics, Aesthetics and Mechanics) robotics.

So, we see that the use of BEAM robotics is an extremely interesting direction in the development of robotics. Further we will consider our exploring beam robotics for adaptive and energy-efficient solutions.

BEAM approach to robot development

BEAM (Biology, Electronics, Aesthetics and Mechanics) robots are an exceptional class of robots that sophisticatedly incorporate the principles of biological intelligence. This cutting-edge approach aims to emulate the functionality of living organisms, moving away from the traditional use of microcontrollers and software. The philosophy of BEAM robotics focuses on creating simple mechanisms to solve complex problems.

Unlike conventional robots, BEAM robots achieve autonomy and functionality through sophisticated electrical circuits. This approach, which differs from the standard dependence on complex electronic components, leads to the creation of a unique category of robots that can be compared to living organisms. The absence of microcontrollers and software makes BEAM robots particularly promising.

The benefits of this approach are energy efficiency, as BEAM robots consume less power due to the minimised use of electronics. The absence of complex electronic components makes BEAM robots more reliable and easier to maintain. Facilitate the study and reproduction of biological principles, offering insight into robotics and biology.

Thanks to its minimalist design, BEAM robots are lightweight and compact compared to more traditional robots, reducing the complexity of the design.

Adaptable to the environment, BEAM robots are highly adaptable to environmental changes and make efficient use of natural energy sources such as solar panels.

Some BEAM robots can self-organise, collaborating to solve problems or coordinate actions without central control.

They show potential for use in nature studies and interaction with living organisms.

As with any approach, there are disadvantages to the BEAM approach, such as the limited use of electronics limits the ability of BEAM robots to perform complex tasks and algorithmic computations.

As with any approach, there are drawbacks to the BEAM approach, such as the limited use of electronics limits the ability of BEAM robots to perform complex tasks and algorithmic computations.

The basic concept of microkernels in BEAM robotics involves the development of small, simple mechanical components that can be coordinated to perform complex actions. Similar to neurons in biological systems, these micro-core components, such as Nv (visual neurons) that respond to changes in light or Nu (motor neurons) that are responsible for movement, are based on mechanical sensors and control mechanisms rather than traditional electronic components.

Ongoing research and development in the field of BEAM robots is making a significant contribution to the understanding of biological principles. This enhanced understanding, in turn, can contribute to the development of new methods in fields as diverse as medicine and biology. The significant energy efficiency inherent in BEAM robots makes them useful for environmental monitoring and solving environmental problems. In addition, they can serve as educational tools, inspiring students and researchers studying the intersection of robotics and biology.

As for the future, the development of BEAM robotics promises even deeper advances in both biology and robotics. They can become the basis for creating complex and adaptive systems that use biological principles to optimise responses in unpredictable conditions.

BEAM robotics, as an innovative direction in the world of robotics, successfully combines natural inspiration with technological efficiency. It acts as a catalyst for understanding the intricacies of natural processes, which ultimately contributes to the creation of sustainable and adaptive systems. Despite the inherent limitations of BEAM robots, their capabilities and benefits are breathtaking in their innovation and potential, providing compelling evidence of the transformative power of this exciting technological direction.

Determining the choice of components for creating a BEAM-robot

The creation of a BEAM robot is one of the first tasks that requires careful selection of components that optimally combine biological principles, technical solutions and pricing. Determining the right combination of components was crucial to achieving maximum efficiency and reliability.

In general, the entire robot was assembled according to the scheme (see Figure 1).

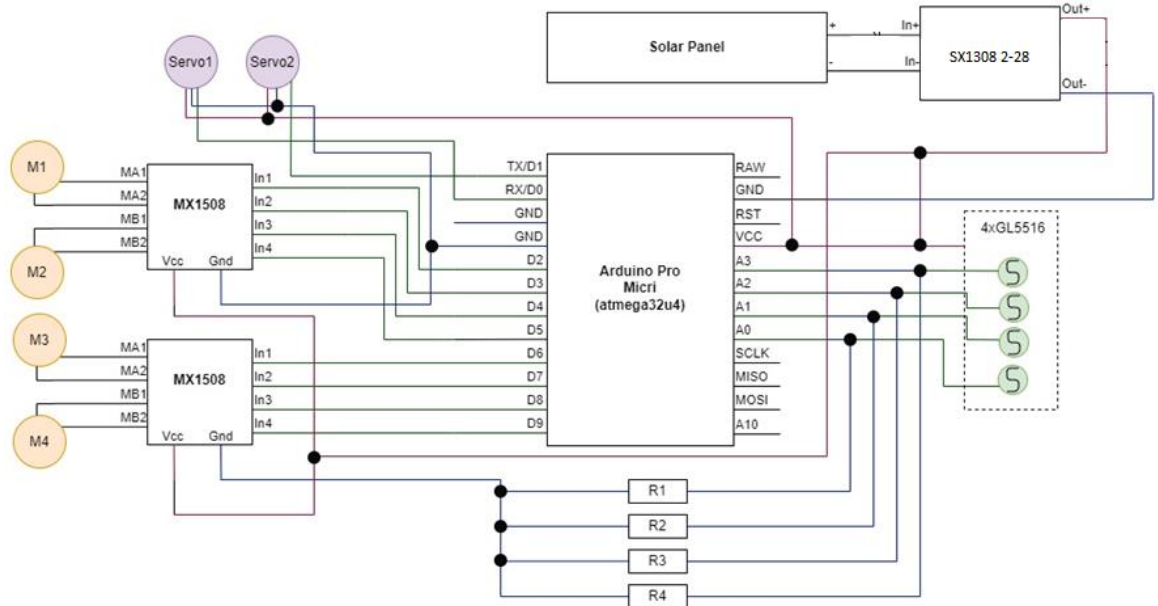


Figure 1: Schematic diagram of the robot design

First of all, the mechanical design of the robot was carefully developed, taking into account the ability to "survive" without intervention.

The use of a solar panel was a key solution for providing power to the robot. This panel converts solar radiation into electrical energy, which is used to power and charge the batteries. This not only provides the energy to find light, but also allows the robot to operate in low-light mode.

The BEAM robot receives energy from 80x45 mm solar panels with a voltage of 5 V, which is fed to the SX1308 2-28 module. This module is used to efficiently convert the energy from the solar panel and supply it to the battery. The SX1308 module is designed to work with energy sources such as a solar panel as well as DC power sources.

The use of servo motors allows the robot to optimally position the solar panel vertically and horizontally to maximise solar energy collection.

The selected sensors determine the robot's ability to interact with its environment. The use of photoresistors to respond to light creates opportunities for the robot to respond to external stimuli, i.e. they are used to determine the illumination around the perimeter of the panel, transmit the information to the Arduino, which analyses the information to decide on the degree of rotation of the servo motors. The optimal placement of these sensors allows the robot to interact effectively with the world around it and perform its intended tasks (see Figure 2).

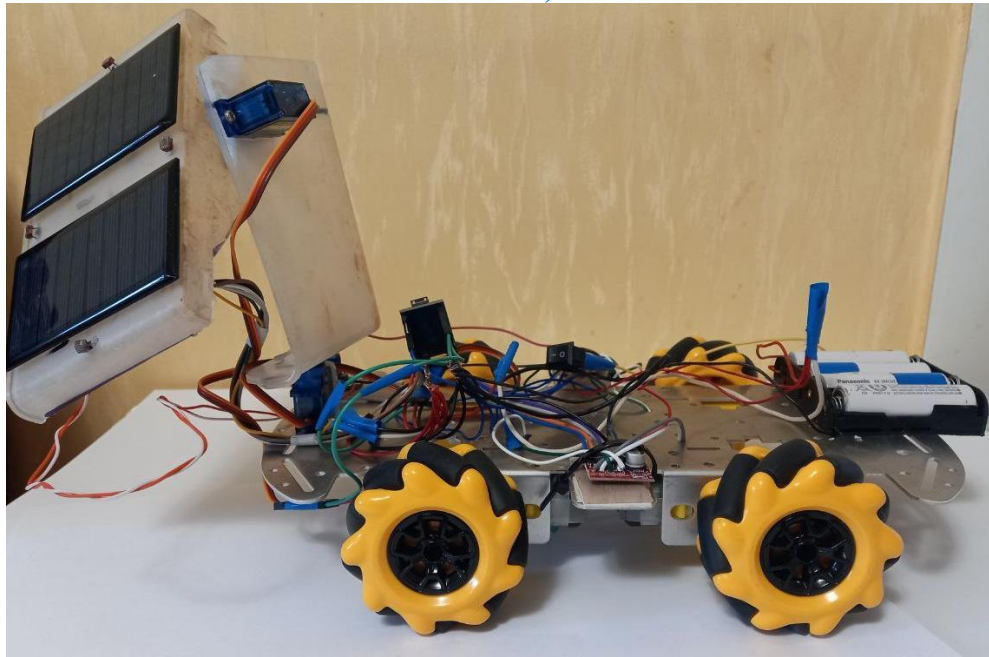


Figure 2: Real prototype of the constructed BIEM robot

The decision to incorporate the Arduino Micro Pro board is a strategic one. This board simplifies software development for controlling the robot, processing input from sensors such as photoresistors. It utilizes this information to make decisions, precisely controls servo motors, contributing to optimal task-solving and efficient energy use. Furthermore, it provides accurate and flexible control of the robot's movements and chassis functions.

In the future, additional functionalities are planned to enhance the robot's capabilities. One such feature involves implementing an energy analysis system for the energy obtained from the solar panel. This system will enable the robot to assess its energy intake and, in case of insufficient energy, autonomously transition into a sleep mode to conserve power. This sleep mode will be activated when the battery charge falls below a certain threshold. This forward-looking approach aims to optimize energy utilization and enhance the robot's autonomy in varying environmental conditions.

Conclusion

BEAM robotics is at the intersection of biological inspiration and technological innovation, offering a paradigm shift in robot design. The absence of microcontrollers and software, combined with a minimalist approach, distinguishes BEAM robots as autonomous objects capable of mimicking the adaptability and efficiency inherent in biological organisms.

Ongoing research and development in the field of BEAM robotics not only deepens our understanding of biological principles, but also paves the way for revolutionary applications in medicine, biology and environmental monitoring. The energy efficiency and reliability of BEAM robots make them valuable tools for solving real-world problems.

Looking to the future, the trajectory of BEAM robotics promises progress in both biology and robotics. These robots, with their adaptive systems guided by biological principles, are able to effectively navigate unpredictable environments.

The practical implementation of the BEAM robot illustrated in this article highlights the careful selection of components and the integration of innovative features such as an energy analysis system. These additions contribute to long autonomy and efficient energy use, increasing the robot's viability in a variety of environmental conditions.

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Последствия алкогольного отравления и методы расследования.

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Абстрактный: Область выявления отравлений алкоголем насчитывает более 100 лет и охватывает области медицины, химии и информатики, стремясь разработать наиболее эффективные и точные методы определения уровня опьянения. В обзоре представлены развитие и современное состояние устройств и методов количественного определения алкогольной интоксикации, разделенных на шесть основных категорий: оценки, алкотестеры, тестирование биологических жидкостей, трансдермальные датчики, математические алгоритмы и оптические методы. Каждая из этих категорий была изучена путем анализа соответствующих показателей и недостатков. Мы обнаружили, что основные разработки в области мониторинга интоксикации этанолом были сосредоточены на неинвазивных трансдермальных/оптических методах индивидуального мониторинга. Многие «категории» систем отравления этанолом в разной степени перекрываются, поэтому категоризация основана только на основных характеристиках методов, описанных в этом обзоре. Таким образом, золотым стандартом измерения уровня этанола в крови является газовая хроматография. Методы предварительной оценки, основанные на математических уравнениях, популярны в основном в области судебной экспертизы. Алкотестеры являются наиболее распространенными датчиками алкоголя на рынке и обычно используются правоохранительными органами. Трансдермальные сенсоры сильно различаются по своим методологиям восприятия, но в основном они основаны на принципе электрического зондирования или скорости ферментативной реакции. Оптические устройства и методики работают хорошо, а в некоторых случаях превосходят алкотестеры по точности измерений. Другие алгоритмы оценки учитывают мультимодальные подходы и должны рассматриваться как перспективные измерения эффектов интоксикации, а не как инструменты скрининга на алкоголь. В этом обзоре обнаружено 38 уникальных технологий и методов измерения алкогольной интоксикации, что указывает на большой интерес к инновациям неинвазивных технологий оценки опьянения.

Ключевые слова: Токсикология, алкоголизм, этанол, отравления.

Введение: Периодическое употребление алкоголя или более чрезмерное употребление алкоголя во время вечеринки или алкогольная зависимость/алкоголизм, часто называемый расстройством, связанным с употреблением алкоголя [1]. Употребление алкоголя также связано с развитием нескольких типов раковой жидкости [1]. В условиях высокой частоты употребления алкоголя и соответствующего воздействия алкогольного отравления на организм и поведение людей необходимость определения уровня опьянения стала важной при оценке состояния личности. В Великобритании вождение в нетрезвом виде связано примерно с 13% всех дорожно-транспортных происшествий со смертельным исходом и является основной причиной смерти мужчин в возрасте от 15 до 59 лет [3]. Чтобы предотвратить эти трагедии, было разработано несколько методов оценки состояния опьянения, охватывающих многие области, такие как биохимия, физиология, фотоника, электроника, анализ изображений и искусственный интеллект.

Алкогольное отравление — стандартизированный показатель, который определяется только концентрацией алкоголя в крови, а не его влиянием на человека, поэтому толерантность, возникающая в результате регулярного воздействия этанола, не учитывается. Хотя аналогичные симптомы интоксикации можно наблюдать и у людей, последствия толерантности к алкоголю остаются малоизученным явлением в контексте более широкой популяции. Уровень ВАС соответствует массе этанола в миллиграммах на 100 мл крови. Степень интоксикации положительно связана с уровнем этанола в крови: высокий уровень интоксикации этанолом 0,5 % (500 мг/дл) и ниже 0,35 % (350 мг/дл) связан со смертью, или серьезный вред человеку или окружающим. Регулярное злоупотребление алкоголем также связано с развитием заболеваний печени и повышением артериального давления, что делает людей более восприимчивыми к будущим осложнениям со здоровьем [5]. Законный предел вождения в нетрезвом виде в Великобритании составляет 80 мг на 100 мл крови, что соответствует ВАС 0,08, что можно классифицировать как один из самых высоких уровней алкоголя, разрешенных к управлению транспортным средством, но во многих европейских странах и странах Ближнего Востока позволяют за очень низкий уровень опьянения (ВАС 0,02) или полный запрет на вождение автомобиля в состоянии алкогольного опьянения в рамках политики «нулевой терпимости». Районом с самым высоким допустимым содержанием ВАС являются Каймановы острова, где ВАС составляет 0,10. Помимо вождения в нетрезвом состоянии, употребление алкоголя также может быть связано с такими преступлениями, как кража и криминальный ущерб, и в этих обстоятельствах алкоголь является катализатором антисоциального поведения и насильственных преступлений. Употребление алкоголя ложится тяжелым бременем на государственные службы. В сочетании с преступлениями, связанными с алкоголем, потерей производительности из-за безработицы и болезней, а также затратами и бременем на Национальную службу здравоохранения, стоимость алкоголя для общества составляет 21 миллиард фунтов стерлингов в год, хотя реальная цифра намного выше, хотя он считается выше. Обзоры экономических последствий употребления алкоголя показывают, что ежегодные затраты в процентах от валового внутреннего продукта (ВВП) варьируются от 0,45 % до 5,44%.

Кратковременные последствия алкогольного отравления не вызывают столь вредных последствий, но и не безобидны. Острая интоксикация может иметь вредные последствия для людей, больных раком или принимающих антибиотики. Реакция этанола в печени может вызвать воспаление и повредить печень пользователя. Другие ситуации, когда острое потребление представляет собой риск причинения вреда, наблюдаются у людей, которые особенно подвержены повышенному риску самоубийства. Этанол воздействует на организм, ингибируя рецепторы гамма-аминомасляной кислоты (ГАМК), воздействуя на центральную нервную систему, что приводит к снижению когнитивных способностей, нарушению речи, потере равновесия и снижению социальной заторможенности. Длительное употребление может привести к расстройству, связанному с употреблением алкоголя. Эта корреляция может указывать на то, что другие химические дисбалансы способствуют последствиям интоксикации. Влияние уксусной кислоты на нервную систему изучено не так тщательно, как действие этанола, и она может быть важным компонентом при определении последствий интоксикации или особенностей употребления алкоголя.

Проверить Результаты : Этанол с отравление датчики о литература видеть __ __ Выход алкоголь напитки отравление другой аспекты , то есть __ __ персона в организме поведенческий , физиологический __ __ и химический о ' изменения собственный __ __ в полученный один сколько результаты отдал _ Все методы разделены на шесть основных разделов: фармакокинетическая оценка, исследование образцов дыхания, жидкостей организма, физиологических изменений, трансдермальная и оптическая спектроскопия. Результаты обзора суммируются по всем рассмотренным устройствам и методам. Помимо проверки поведенческих и физиологических изменений, вызванных алкогольной интоксикацией, скорость метаболизма этанола также может использоваться как индикатор уровня интоксикации человека.

Последний двадцать год внутри этанола кожа через выпускать скорость контроль делать для пот содержание пригодный для носки или независимый устройства через измерять __ __ давать возможность дающий один ряд сенсорный устройства работа выпущенный _ Носимым устройствам в последние десятилетия уделяется много внимания: было опубликовано несколько обзоров, посвященных различным устройствам, доступным на рынке, а также лабораторным испытаниям. В этот раздел добавлены результаты этих статей, а также другие методы измерения трансдермальной алкогольной интоксикации.

Вывод : Электрохимические и ферментативные датчики представляют собой наиболее разнообразный спектр инноваций в этой области, предлагающий множество методов сбора и обработки сигналов. Результаты этого обзора литературы также позволяют предположить, что лица, совершившие правонарушения, связанные с алкоголем, не могут регулярно привлекаться к участию в правоохранительных органах или в исследованиях, связанных с алкогольной интоксикацией. индивидуальные особенности дыхания.

Трансдермальные датчики также полезны в ситуациях, когда сотрудничество субъекта невозможно, дыхание или забор крови невозможны. Однако эффективность сенсоров, обсуждавшихся ранее, зависит от фармакокинетической модели, на которой они основаны, и любое отклонение от модели увеличивает ошибку измерения. Трансдермальные датчики также предлагают уникальную возможность для личного тестирования на алкоголь с использованием носимых технологий. Хотя электрохимические/ферментативные инструменты могут быть миниатюризированы при тестировании этанола, использование химических/ферментативных датчиков представляет собой уникальный недостаток, связанный со сроком службы таких датчиков. Поскольку они зависят от скорости ферментативной реакции или отложения побочных продуктов на электродах, износ этих компонентов влияет на их долгосрочную работу. Решить эту проблему можно только регулярной заменой сенсорной составляющей устройства, увеличивая потребительские и трудовые затраты.

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PRODUCTION OF RYE BREAD USING DISCRETE TECHNOLOGY

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Annotation. For example, at the beginning of the twentieth century, over 1.2 kg of rye bread per day. But during the twentieth century, the consumption of rye bread gradually decreased and already in the years, the average person ate 600 g of bread per day, of which 450 g of rye.

The area under winter rye began to be reduced, since this crop was less productive compared to winter wheat.

Key words: rye bread; dry sourdough; accelerated method.

In our time, the total consumption of bread has sharply decreased and for the average resident it is about 200 g per day? mainly made from wheat flour. The first significant restructuring in the structure of bread consumption and its assortment. Due to a shortage of rye grain, the production of seeded and peeled rye flour was practically stopped and, as a result, peeled rye bread, previously its most popular variety, disappeared from store shelves [1,2,3].

The twentieth century led to an increase in the production of products from a mixture of rye and wheat flour. During that period, varieties such as Oryol, table, etc. appeared [1,4].

The second significant wave of changes in the technology and range of bakery products has been characteristic of the last 20 years and continues now.

These additives significantly facilitate technological processes and help level out deviations in the quality of the main raw material [5,6,7,8]. Traditional methods of preparing bread, based on long processes of alcoholic and lactic acid fermentation, are being replaced by accelerated methods that exclude lactic acid fermentation and intensify alcoholic fermentation through the use of a significant amount of yeast [9,10,11,12].

Wheat flour cannot be considered justified in rye flour, since, although both cereals are similar in nutritional value, rye flour has a higher yield and contains significantly more peripheral parts of the grain. The nutritional value of rye bread is higher and it contains significantly more dietary fiber. [13,14,15]

Rye bread, familiar to consumers, can only be obtained with the use of biological starters, which contribute to the formation of a characteristic taste and aroma. In this case, acid formation is of great importance for the complete swelling of rye proteins and for increasing the ability of the dough to better loosen. The resulting lactic acid prevents the development of other fermentation processes, and the acidic environment creates favorable conditions for the formation of flavor-forming compounds during the baking process [16,17,18].

With the development of small-scale bakery production, as well as the transition of enterprises to a one- or two-shift mode, the issue of promptly producing starter cultures or a method for preserving them becomes relevant.

Research has been carried out aimed at improving the technology for preparing sourdough rye bread, in relation to the conditions of low-power enterprises [19,20,21].

The breeding cycle is intended to obtain the main starter and is carried out from time to time, in the event that there is a need to refresh the production starter. The production starter is

used continuously for a long time, using part of it to knead a portion of dough, and the remaining part to renew the starter by adding flour and water to it [22,23,24,25].

You can obtain the main starter by using pure cultures of lactic acid bacteria using a special patented technology or use a starter delivered from another enterprise as a source of fermentation microflora.

An alternative to this solution may be to obtain the main starter at the enterprise itself through the breeding cycle due to spontaneous (spontaneous) fermentation. The use of hops, the bacteriostatic properties of which are well known, makes it possible to increase the efficiency of souring and ensure the necessary composition of the microflora of the sourdough [26,27,28].

Discrete technology for preparing rye bread paid special attention to spontaneous fermentation starters. Thick biological starters of spontaneous fermentation were chosen for the research (the ratio of peeled rye flour to liquid is 1:0.7, humidity 50-56%), since they contain more acid-forming bacteria and acids compared to liquid starters. Acids improve the structure of rye dough and slow down the dextrinization of starch. By using thick starters, it is easier to obtain bread with an elastic and dry crumb.

During the development of spontaneous fermentation starter, refreshment was carried out after 12 hours, using the accepted ratio of flour and liquid. A hop decoction with a hop concentration of 23 g per 1 liter of water was used as a liquid phase [29,30,31,32].

The activity of lactic acid bacteria in the starter stabilized at a high level on the fifth day and amounted to 30-35 minutes, subject to a temperature regime of 23...25 °C, the acidity reached 16 degrees.

Using starters of spontaneous fermentation, we baked plain rye bread GOST 2077-84 (Table 1).

Table 1

Index	Meaning
Specific volume, cm ³ /g	1,77
Humidity, %	49
Acidity, hail	9,5
Porosity, %	60
Organoleptic evaluation	
Appearance	The shape is correct, the color of the crust is dark brown, the surface is smooth
State of the crumb	Elastic, uniform porosity
Chewability	Chews well, does not crumble
Aroma	Expressed
Taste	Nice

Production baking showed that when kneading dough for rye varieties, the use of spontaneous fermentation as a source of fermentation microflora ensures the production of bread that meets the established requirements in terms of physical and chemical parameters and has a unique taste and aroma –vol.

To maintain the microflora of starter cultures in an active state, they must be constantly refreshed. For enterprises of small capacity, violations of the rhythm of selection and interruptions in work are characteristic, these factors worsen the quality of the starter - it becomes unsuitable for preparing dough [33,34,35,36].

Given the relevance of preserving the technological properties of the starter, it becomes necessary to preserve the starter with its subsequent activation. To this end, we have studied methods for preserving the starter of spontaneous fermentation.

Dry starter activation was carried out by reduction by adding water. Defrosting of the frozen starter was carried out at a temperature of 20.25 °C with further refreshment with a water-flour mixture. The chilled sourdough was brought to a temperature of 28 °C by introducing a water-flour mixture.

The fermentation properties of the reduced starter cultures were evaluated based on the results of trial baking of plain rye bread. In all cases, the leaven was introduced in the amount of 25% of the total amount of flour introduced.

The results of test baking are given in table. 2.

table 2

Influence of sourdough preservation methods on the quality of plain rye bread weighing 0.3 kg

Level of quality	The value of bread quality indicators		
	Dry sourdough	Frozen sourdough	Chilled sourdough
Humidity, %	50,0	51,2	50,8
Acidity, hail	11,0	8,0	11,2
Porosity, %	59	50	57
Volume, cm ³	620	530	575

The analysis of the data obtained shows that simple rye bread with the use of dry sourdough was characterized by the best physical, chemical and organoleptic parameters compared to bread with chilled sourdough. Bread with the introduction of frozen and defrosted sourdough has low characteristics, probably because the microflora of the bred sourdough could not withstand the effects of negative temperatures [37,38,39].

In the production of bread from rye and a mixture of rye and wheat flour, one of the main trends in the development of bread baking has recently been associated with the development and practical implementation of accelerated methods of making bread, which make it possible to produce bread in enterprises with a discrete production cycle and small production vigilance. For bread made from rye and a mixture of rye and wheat flour, the preparation of which is based on the use of a continuously renewable sourdough phase, the implementation of this trend faces a number of difficulties [40,41,42].

To solve the problem of organizing the discrete production of rye bread, dry sourdoughs based on pure cultures of lactic acid bacteria and yeast, as well as acidifiers based on organic acids, have recently been used [43,44,45].

The use of dry starter cultures greatly facilitates and speeds up the process of making bread, since lactic acid bacteria and yeast are already in the optimal ratio, aromatic substances and acids

have been accumulated, and in conditions of small production, the problem of its continuity and limited production areas [46,47].

Studies on the production of dry rye sourdough have shown that it is expedient to use a sourdough of spontaneous fermentation using hop broth as a starting material. The dosage of dry sourdough is 5-10%. When using rye flour, fermentation is carried out to an acidity of no more than 14 degrees, when using a mixture of rye and wheat flour - to an acidity of no more than 12 degrees. It is possible to carry out a preliminary race of the rack of test pieces for 5-20 minutes. Then the dough pieces are sent to the final proofing, which is carried out until the dough pieces are ready for baking, and the bread is baked [48,49].

The low moisture content of dry sourdough allows for a long time to preserve its properties and transport it to any distance.

The use of dry rye biological sourdough makes it possible to produce bread identical in quality to that produced by continuous sourdough production [50].

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**PATHOPHYSIOLOGY OF KIDNEY DISEASES. DISORDERS OF URINE
PRODUCTION AND EXCRETION. CHARACTERISTICS OF CHILDREN**

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Annotation: Chronic kidney disease (CKD) is a condition in which an initial injury is superseded by a more gradual, chronic process of decreasing function that, in the most extreme cases, ultimately leads to the need for renal replacement therapy. An important consideration is that, while the initiating causes are quite varied, as CKD progresses the mechanisms involved become increasingly similar, so that eventually a set of common events contributes to inexorable loss of functional nephron mass. The mechanisms that are involved can be described as those that disrupt normal renal physiology and those by which decreasing structural integrity renders such disruption irreversible. Thus, the key to understanding progression is examining how function becomes dysregulated and how this dysfunction interacts with the process of renal scarring. This chapter will review these mechanisms.

Key words: Chronic kidney disease, Glomerular filtration rate, Diabetic nephropathy, Chronic kidney disease patient, Renal scarring

INTRODUCTION

The renal system consists of the kidney, ureters, and the urethra. The overall function of the system filters approximately 200 liters of fluid a day from renal blood flow which allows for toxins, metabolic waste products, and excess ion to be excreted while keeping essential substances in the blood. The kidney regulates plasma osmolarity by modulating the amount of water, solutes, and electrolytes in the blood. It ensures long term acid-base balance and also produces erythropoietin which stimulates the production of red blood cell. It also produces renin for blood pressure regulation and carries out the conversion of vitamin D to its active form. The renal development, the process of urine production and excretion, and the clinical significance of the renal system will be the focus of this article.

DEVELOPMENT

Three different sets of kidneys develop consecutively from the urogenital ridges, and the last set persists to become the adult kidney. The first renal tubular system is called the pronephros. Pronephros develop during the fourth week of embryonic development but quickly degenerates as mesonephros appears. Mesonephric kidney degenerates as the metanephros develops through its

remnant is incorporated into the male reproductive system. The metanephros begins its development around the fifth week of embryonic development as ureteric buds. As the ureteric buds develop, it induces the formation nephrons.[1] The distal ends of the ureteric buds develop into the renal pelvis, calyces, and collecting ducts as the proximal aspect of the ureteric buds develop into ureters.[1][2] A structure called cloaca develops to form the rectum, anal canal, and urogenital sinus. The urogenital sinus then forms into the urinary bladder and the urethra. By the third month of fetal development, metanephric kidney is able to excrete urine into the amniotic fluid.[3]

MECHANISM

Glomerular Filtration

Glomerular filtration is the initial process in urine production. It is a passive process in which hydrostatic pressure pushes fluid and solute through a membrane with no energy requirement. The filtration membrane has three layers: fenestrated endothelium of the glomerular capillaries which allow blood components except the cells to pass through; basement membrane, which is a negatively charged physical barrier that prevents proteins from permeating; and foot processes of podocytes of the glomerular capsule that creates more selective filtration. The outward and inward force from the capillaries determines how much water and solutes crosses the filtration membrane. Hydrostatic pressure from the glomerular capillaries is the major filtration force with a pressure of 55mmHg. The other potential filtration force is the capsular space colloid osmotic pressure, but it is zero because proteins are not usually present within the capsular space. Then the capsular space hydrostatic pressure and the colloid osmotic pressure in glomerular capillaries negate the filtration force from the hydrostatic pressure in the glomerular capillaries, creating a net filtration pressure which plays a big role in the glomerular filtration rate (GFR).[4]

GFR is the volume of fluid filtered in a minute, and it depends on the net filtration pressure, the total available surface area for filtration, and filtration membrane permeability. The normal GFR is between 120 to 125ml/min. It is regulated intrinsically and extrinsically to maintain the GFR. The intrinsic control function by adjusting its own resistance to blood flow via a myogenic mechanism and a tubuloglomerular feedback mechanism. The myogenic mechanism maintains the GFR by constricting the afferent arteriole when the vascular smooth muscle stretches due to high blood pressure. It dilates the vascular smooth muscle when pressure is low within the afferent arteriole allowing more blood to flow through. Then the tubuloglomerular feedback mechanism function to maintain the GFR by sensing the amount of NaCl within the tubule. Macula densa cells sense NaCl around the ascending limb of the nephron loop.[5] When blood pressure is high, the GFR will also be high; this decreases the time needed for sodium reabsorption, and therefore sodium concentration is high in the tubule. The macula densa cell senses it and releases the vasoconstrictor chemicals which constricts the afferent arteriole and reduces blood flow. Then when the pressure is low, Na gets reabsorbed more causing its concentration in the tubule to be low, and macula densa do not release vasoconstricting molecules.[6][7]

The extrinsic control maintains the GFR and also maintains the systemic blood pressure via the sympathetic nervous system and the renin-angiotensin-aldosterone mechanism. When the volume of fluid in the extracellular decreases excessively, norepinephrine and epinephrine get released and causes vasoconstriction leading to a decrease in blood flow to the kidney and the level of GFR. Also, the renin-angiotensin-aldosterone axis gets activated by three means when the blood pressure drops. The first is the activation of the beta-1 adrenergic receptor, which causes the release

of renin from the granular cells of the kidney. The second mechanism is the macula densa cells which senses low NaCl concentration during decreased blood flow to the kidney and trigger the granular cells to release renin. The third mechanism is the stretch receptor around the granular cells senses decreased tension during decreased blood flow to the kidney and also trigger the release of renin, therefore, regulating the glomerular filtration.[6]

Tubular Reabsorption

The four different tubular segments have each unique absorptive properties. The first is the proximal convoluted tubule (PCT). The PCT cells have the most absorptive capability. In the normal circumstance, the PCT reabsorbs all the glucose and amino acids as well as 65% of Na and water. The PCT reabsorb sodium ions by primary active transport via a basolateral Na-K pump. It reabsorbs glucose, amino acids, and vitamins through secondary active transport with Na and an electrochemical gradient drives passive paracellular diffusion. The PCT reabsorbs water by osmosis that is driven by solute reabsorption. It also reabsorbs lipid-soluble solutes via passive diffusion driven by the concentration gradient created by reabsorption of water. Reabsorption of urea occurs in the PCT as well by passive paracellular diffusion driven by a chemical gradient.[8]

From the PCT, the non-reabsorbed filtrates move on to the nephron loop. The nephron loop functionally divides into a descending and an ascending limb. The descending limb functions to reabsorb water via osmosis. This process is possible due to the abundance of aquaporins. Solute do not get reabsorbed in this region. However, in the ascending limb, Na moves passively down its concentration gradient in the thin segment of the ascending limb, and also sodium, potassium, and chlorides get reabsorbed together through a symporter in the thick segment of the ascending limb. The presence of Na-K ATPase in the basolateral membrane keeps this symporter functional by creating an ionic gradient. There is also the reabsorption of the calcium and magnesium ions in the ascending limb via passive paracellular diffusion driven by the electrochemical gradient. No water reabsorption in the ascending limb.[9]

The next tubular segment for reabsorption is the distal convoluted tubule (DCT). There is a primary active sodium transport at the basolateral membrane and secondary active transport at the apical membrane through Na-Cl symporter and channels. This process is aldosterone regulated at the distal portion. There is also calcium reabsorption via passive uptake controlled by the parathyroid hormone. Aldosterone targets the cells of the distal portion of the DCT causing synthesis and retention of apical Na and K channel as well as the synthesis of Na-K ATPase.[8]

Right after the DCT, there is a collecting tubule where the final stage of reabsorption occurs. The reabsorptions that occur here include primary active sodium transport at basolateral membrane; secondary active transport at apical membrane via Na-Cl symporter and channels with aldosterone regulation; passive calcium uptake via PTH-modulated channels in the apical membrane; and primary and secondary active transport in the basolateral membrane.[10]

Clinical Significance

The renal system pathologies have a wide range of clinical presentations. Emphysematous urinary tract infections, chronic kidney disease, nephrolithiasis, and urinary incontinence in men and women are topics of discussion below.

Emphysematous UTI is a form of UTI, where infections of the lower or upper urinary tract present with gas formation. Escherichia coli and Klebsiella pneumoniae commonly cause emphysematous UTI although Proteus, Enterococcus, Pseudomonas, Clostridium, and Candida spp can be part of the causative organism.[18] The common risk factors seen in patients with

emphysematous urinary tract infections are diabetes and urinary tract obstruction.[19] Emphysematous UTI usually manifests as cystitis, pyelitis, and pyelonephritis with common presentations such as fever, chills, flank or abdominal pain, nausea, and vomiting. Laboratory testing can reveal elevated serum creatinine, pyuria, leukocytosis, and hyperglycemia. Diagnosis can be made with plain film and/or computed tomography, which will show air in the renal parenchyma, bladder, or surrounding tissue.[19] Treatment of emphysematous UTI is usually by systemic antibiotics.[19][20] Percutaneous drainage might be necessary for pyelonephritis.

Chronic kidney diseases are not uncommon. Approximately 16.8% of the US population has chronic kidney disease (CKD).[21] CKD is the presence of kidney damage with urinary albumin excretion of over 29 mg/day or decreased kidney function with GFR less than 60mL/min/1.73m² for three or more months. CKD is classified based on the six GFR stages and the three albuminuria stages. Clinical manifestations include edema and hypertension although some patients can be asymptomatic. Laboratory testings are essential in the diagnosis of CKD. An increase in serum creatinine and urea concentration are very common findings. Hyperphosphatemia, hyperkalemia, hypocalcemia, elevated parathyroid hormone, and metabolic acidosis may also be present in the lab findings. When CKD is suspected, ultrasound, urinalysis with microscopy, and albumin to creatinine ratio are necessary. Ultrasound will help rule out any form of obstruction.[22] Urinalysis with microscopy will help rule out glomerulonephritis in the absence of albuminuria, RBC cast or dysmorphic RBC. Urinalysis can also help rule out interstitial nephritis when sterile pyuria is negative. Once urinalysis is deemed normal, the patient needs evaluation for renovascular disease. If there is no evidence of renovascular disease as a causative factor, a kidney biopsy might be conducted, then evaluation for renal replacement therapy can be done.[23] Management of CKD involves treatment of reversible causes, preventing or slowing the progression of renal disease, treatment of the complications of the renal failure, medication adjustment, and proper education of a patient on the renal disease and on the possibility of needing renal replacement therapy.[24][25]

Nephrolithiasis is another pathology commonly seen in the renal system. Nephrolithiasis is the presence of crystallized calcium, magnesium, cystine, or uric acid in the renal system. Calcium stones are known to cause eighty percent of nephrolithiasis. Calcium stone has two forms: calcium oxalate which is the most common and the calcium phosphate.[26][27] Several risk factors lead to nephrolithiasis including high oxalate diet, prior history of nephrolithiasis, family history of nephrolithiasis, recurrent UTI, and enhanced enteric oxalate absorption caused by gastric bypass procedures, bariatric surgery, and short bowel syndrome.[28][29] Approximately seventy percent of the patients with nephrolithiasis are symptoms free.[30] The most common symptoms associated with nephrolithiasis are waves of waxing and waning unilateral flank pain that lasts 20 to 60 minutes. Hematuria is also a common symptom seen in nephrolithiasis. As the diagnosis of nephrolithiasis is under consideration, other possible pathologies need to be ruled out. For instance, pyelonephritis frequently presents with flank pain, although it also presents with a fever, which is not usually present with nephrolithiasis. Ectopic pregnancy can be mistaken for renal colic. In this case, a renal and pelvic ultrasound can help to clarify.[31] Once symptomatic ureteral stone is clinically suspected, non-contrast renal CT should follow. Pain management should also commence. If urosepsis is present, emergent decompression should be conducted. If urosepsis is absent, the size of the stone should undergo evaluation. Observation, symptomatic treatment, alpha-blocker, and urine straining is appropriate for patients with a stone size of less than 10 mm.

Extracorporeal shock wave lithotripsy or ureteroscopy can potentially help patients with stones greater than 10 mm.[32]

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USE OF BLENDED EDUCATIONAL TECHNOLOGY IN DEVELOPING
STUDENTS' COMPETENCE IN NATURAL GEOGRAPHY

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Abstract. This article presents suggestions and recommendations regarding the possibilities of mixed education technology and their use in the development of students' competence in natural geography.

Key words: mixed education, model, virtual education, distance education, electronic education, competence, creativity.

The technology of mixed education is important for independent education of students in subjects, improvement of creative ability and development of competence [1].

Blended education has been widely used since 1990 to improve the education of students and teaching methods of professors and teachers. Currently, the Clayton Christensen Institute can be cited as a center that is conducting effective scientific research on mixed education. According to the researchers of this institute, blended learning is a combination of traditional and online learning with the participation of faculty and students, in which the way, time, place and pace of learning is controlled by students. It takes into account the elements of self-management and provides the teaching experience and online integration of the professor-teacher [2].

In this regard, researchers and scientists have given different definitions of mixed education technology. In particular, according to I.A. Nagayeva, mixed education technology is a technology intended for teaching in an electronic and online format. In this case, students will have the opportunity to partially independent education [3].

According to Mijares Illiana [4], Richards Griff [5], mixed education is an innovative pedagogical technology aimed at organizing classes and independent education of students based on the integration of electronic and traditional education. According to B. Means, Y. Toyama, R. Murphy, M. Bakia, K. Jones, blended learning is a combination of various resources, in particular, face-to-face training and e-learning elements. is a method of learning based on mutual integration [6].

According to T.I. Krasnova, the main task of mixed educational technology is to teach using various information-educational environments, educational platforms and educational websites located at the addresses of the global network, and it is a wide range of distance education. provides opportunities [7]. It also combines classroom teaching and learning in an electronic environment and allows students to independently test their knowledge of science [8].

Some researchers associate blended learning with various distance learning. Live communication between professor and student is mandatory [9]. The introduction of this technology into the educational environment, together with the emotional component of communication, provides opportunities for electronic education such as interactivity and flexibility in the mutual formation of associative ideas. Also, blended learning technology combines the advantages of asynchronous and synchronous learning.

Indeed, e-learning allows for individualization of learning trajectories for students (starting with the speed of mastering learning material and ending with a set of completed tasks) and automates monitoring and diagnosis of their learning activities [1]. Blended education is one of the most popular forms of education today. In the course of this form of education, the student receives independent education using information-educational environments, educational

platforms, and Google services, in case of incomprehensible questions, the group consults online and offline, and the professor-teacher help will be provided. Due to the use of blended learning during group sessions, each student learns communication skills, demonstrating positive changes in his/her learning. repeats the learned information and prepares for learning a new topic. Blended education in many cases relies on tasks and is organized on the basis of basic, important information, and additional information is distributed to the student through online platforms, information-educational environments. While learning independently using these environments, the student collaborates with group members by participating in online discussions. Also, distance and independent education are effectively combined at different stages of education.

It should be remembered that the success of mixed education is determined by the correct selection of educational tools [2]. The advantage of this form of education is that the student himself determines the speed of assimilation of educational information and the intensity of the educational process. This mixed education includes the following European education models [2]: distance learning; audience education (face-to-face learning); internet education (online learning); continuous education (lifelong learning).

This form of education is extremely important for the following persons: employees of industries where working hours are not strictly regulated; employees of enterprises, organizations and firms who must receive education without separation from production; For those who want to study in a "live communication-based learning" environment.

Such models combine the integration of tools, that is, the traditional "live" presentation of educational material with online lectures, and include [10]: learning by observing processes and events; study of a subject with the help of a professor-teacher giving recommendations to students; combining traditional and new technologies: presentations, audio media, interactive whiteboards, use of the Internet (forums, conferences, e-mail, chat rooms, online surveys), personal computers, social networks.

According to the results of our research, communication between the professor and the student outside the classroom is considered important. Therefore, the method of organizing the educational process (face-to-face) cannot be combined in a simple way without digital technologies - it is necessary to take a complex approach to this process, to create a system of interrelated methods of teaching. Using digital technologies, the audience leads to the full disclosure of the possibilities of blended learning. When using mixed educational technology, it is necessary to choose the right and comprehensive selection of educational materials in accordance with the goals and tasks of teaching. In this case, the educational process using mixed learning technology requires the support of the professor-teacher for students in each combination of the selected material [10].

In this regard, that is, the issues of applying mixed education technology to the educational process are detailed in the scientific research of D. L. Matukhini [11]. In his research, he paid special attention to working with electronic resources as a supplement to classroom training. It shows that part of the training can be done through digital technologies, but it is believed that it is necessary to have a live dialogue on complex topics.

In some scientific studies, the professor-teacher is considered as an "educator", a necessary mediator between the educational material and students, he manages the educational activity "at a distance", supports the independent work of the student.

According to I.I.Osadchenko, YE.Y.Konovalova, S.D.Sirotyuk, management, planning and self-monitoring, evaluation and regulation of one's own education with the help of mixed educational technology - critical thinking, time management, power distribution is achieved [12]. These are important components of blended learning technology. Therefore, mixed education technology is important in the development of students' competence in natural geography. It provides the following opportunities: each student will have the opportunity to acquire the necessary knowledge and skills related to the science of natural geography in a convenient format; classes on natural geography are organized on the basis of innovative pedagogical technologies; geography provides tools for effective management of education; teaching time is reduced without losing the advantages of the traditional approach to natural geography; technology and teaching enrich each other; active social interaction of professor-teacher and students occurs; implements effective learning of educational information on natural geography regardless of time and place; a variety of didactic approaches to the science of natural geography is provided; natural geography improves the quality of education (including effective teaching tools through greater use); individual control over classes related to natural geography is provided; students develop modern work, organization of communication tools; the priority of students' independent activities increases; provides individual support for each student's educational activities related to natural geography; ensures the organization of collective educational activities in mastering the science of natural geography; the flexibility of geography education trajectory is ensured; re-usable online and offline learning and teaching content will be integrated.

Summarizing the above, it can be noted that the main features and technologies of mixed educational technology include the use of new communication tools, time saving, and innovative diagnostic and control programs. There are the following models for using blended learning technology:

1. Face-to-Face Driver model: an important part of the curriculum is studied in direct cooperation with professors and students in higher education institutions; E-learning is used as an addition to the main program;

2. Rotational model: changing the methods of working with materials during the transition of the curriculum; study time is divided between individual e-learning and e-learning distance support training and classroom learning:

2.1. Class exchange: exchange of learning methods according to the established schedule or according to the wishes of the professor-teacher, use of electronic education, participation of a group of students or individually;

2.2. Feedback classes (Flipped Classroom): presence of a confirmed schedule of daytime educational activities, including work on projects; effective use of e-learning with some control over learning; the ability to choose a place for e-learning, to organize independent educational activities;

2.3. Individual: availability of an individual schedule for studying the subject, mandatory online phase of education.

3. Flex model (Flexible model): effective use of e-learning; providing online, offline and face-to-face support to listeners; availability of an individual schedule; work in small groups; organization of group projects; - individual training;

4. Self-interfaced model: study one or more e-learning courses completely online; teaching at the same time in different educational institutions;

5. Enriched virtual education model: model of the entire educational institution; voluntary attendance at the educational institution every day; a combination of face-to-face and distance learning.

Each model is characterized by the dominance of one of the three components of blended learning technology:

1. Direct personal interaction of educational participants is a process;
2. Interactive interaction of computer technologies and electronic information as a means of education;
3. Self-education.

The results of our research showed that using the presented models of mixed educational technology, it is possible to acquire geographical knowledge and use it in further professional activities outside the educational institution.

Blended learning technology helps to master the skills of skillful planning of their activities, supports the automation of learning and ensures the use of real learning materials.

In conclusion, in order to apply mixed educational technology to the geography education and training process, it is necessary to develop the ability to automate education, increase independence, personal responsibility for the results of one's work, and organize the educational process. Therefore, the need to speed up the process of transferring knowledge from a teacher to a student, the technology of mixed education is of great importance. Its use means the improvement of the effectiveness of geography education and the development of students' geographical competence, as well as the improvement of the organization of the educational system, the need to comply with new educational standards. Blended learning technology provides a wide range of learning opportunities by combining traditional presentation and information with online lectures and forum meetings.

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The use of minerals in medicine in Turkestan khanates (XVI-XIX centuries)

Abstract. in this article, in Bukhara, Khiva, and Kokand khanates (XVI-XIX centuries), mining products such as iron, saltpetre, oil, ruby, emerald, ruby, diamond were used in the treatment of various diseases and the useful properties of these minerals are given.

Key words: mining products, medicine, products of totio, magnetic stone, iron, saltpeter, oil, ruby, emerald, ruby, diamond, treatment.

The inhabitants of Turkestan khanates also used mining products effectively in medicine. According to Muhammad Talib, Tajiddin Hasanhoji (the author's father), a descendant of the sheikhs of Dzhoybor, built a "hospital" in Bukhara, and the population said that "if anyone needs medicine, juice, roses, oils or peat vodka, eye medicine, our father is in the corner of our village." he would have been ready, they would have taken from him" - he writes¹. It is known that one of the eye medicines widely used in the Middle Ages was "totio". Totiya, that is, a crystal-crystal, transparent substance formed from copper rust, is also known to the local population, and it is mainly used in medicine. In general, since ancient times, people of the East applied this medicine to the eyes in order to clarify the eyes².

This situation indicates that the Khojas of Dzhoybor used different types of rocks for medicine, and that they served to a certain extent in mining and used their benefits in the life of the community. Sources provide information about the use of mountain mummy in bone diseases³.

Oil products were used in the treatment of skin ulcers and childhood diseases in the Kokand Khanate. Some of these rocks are used as ointments for various wounds.

Salt is used to cure toothache, open wounds, heal them quickly, and bone pain.

The ruby stone was used in jewelry not only for its beauty, but also for its healing properties. Mahmud ibn Mansur (15th century) said that "the property of ruby is that if it is carried by a person, it protects against cholera and other diseases. If it is kept in the mouth, it will strengthen the heart, remove sadness, [a person] will not feel thirsty, he will always be happy and happy." ⁴. According to Aminaddin Khan bin Sayyid Abdul Makarim Amir Khan al-Husaini al-Hirawi (19th century), "ruby and diamond lighten the heart and have the power to drive away sadness from the heart." It is said that the ruby stone balances the blood pressure in the blood vessels and has the property of purifying the blood. ⁵. The population was also aware of the useful properties of stones. These features have an important role in determining the price of

¹ Muhammad Talib. Matlab ut-talibin / translated from Persian and comments by G. Karimi and E. Mirkomilov. - T.: Movarounnahr. 2016.- B.197.

² Khoja Samandar Termizy. Program ul-muluk. (Translation from Persian-Tajik by J. Esonov.) - Tashkent., "Sharq", - 2001. - P. 333.

³ Mahmud bin Wali. "Bahr ul asrar fi manaqib ul-ahyor" (The sea of secrets about the bravery of noble people). UzRFASHI manuscript No. 2372 -329 p. sheet

⁴ Muhammad bin Mansur. Javharnoma. UzR SHI No. 2294 /II numbered manuscript -186 b - 191 a. sheet

⁵ Aminuddin Khan bin Sayyid Abdul Makarim Amir Khan al-Husaini al-Hirawi. (About knowing the value of jewelry.) UzRFASHI #5050/ III. - 139 p. sheet

these jewels. According to this author, the value of the ruby and the diamond in the best state of the stone was equal.

Author unknown (copied by the calligrapher Kholmurod Gullanli in 1877) in the work "Javahirlar Risola", it is noted that every stone was used in jewelry by the people, knowing that it has medicinal properties.⁶ In particular, it is said about the diamond: "A person who keeps a diamond looks precious to kings (sultans) and ahkom (governors). Not afraid of anyone. Jazam and bars [barsom] and mahiulyo-like diseases are repelled by the stain.⁷ The author also gives interesting information about the ruby stone.⁸ "Hukamo (judges) say that anyone who keeps a deaf person with him will be safe from all sick people and will give strength to him. [The text in the margin: garduh deb – izhaklik amur – (intestinal amuz is prescribed, the result is studied.) Let the person who keeps the dumb look dear and honorable in the eyes of the people. If a child with a bad habit is tied to the navel (below the navel), get rid of bad behavior. And do not be afraid in sleep. If they add (red) redness, it will make the face of the person who eats interesting, become cheerful, and ward off swelling of the stomach.⁹

He also knew the properties of the local emerald stone. "Whoever keeps an emerald will be saved from eye pain and the light of his eyes will increase and he will not be blind (not seeing at night). Hukamo is said to be an emerald, the most poisonous of all poisons. If he knowingly gave poison to everyone, if he crushed and crushed a half-emerald and added it to ayron and drank it, he would ward off the poison. If they hold a beautiful and beautiful emerald to their horizontal eye, they will be horizontally blind. There is nothing worse than that. And if animals like snakes and scorpions bite a person, if they crush two carats of emerald and add it to a rose, and rub it on the ground, it will bring out the poison and calm the pain. Those who exaggerate, may the emerald-bearded zurg"(?) be safe from the evils of the environment. May the light of his eyes increase.¹⁰

Other authors of the Middle Ages also confirm such properties of emerald. Emerald is also protected against poison by Beruni, there are no snakes in the place where there is emerald, the color and shape of the emerald grows and shrinks according to the seasons of nature, the color of the emerald turns towards the end of the month, and the emerald depends on the direction of the wind. information such as deviation is found. There is information that it is found in the state of gel among stones in the mountains. Abu Rayhan Beruni informs about Khorezmshah's having an emerald goblet" is noteworthy. Ibn Mubarak Muhammad al-Qazvini (19th century) also confirms such information about emerald.¹¹

Special medical properties of Lojuvard stone were known to many. According to "Javahirlar Risola" "If everyone who has a lojuvard gets rid of intestinal pain and rubs it on the eye instead of rubbing it, it will get rid of eye disease and increase the light of the eye." - is noted. Lojuvard was among the trade products of the Bukhara Khanate.

Residents of Turkestan khanates (jashm) used to get nephrite stone through foreign trade. This stone was widely used in jewelry, making daggers, knives, sword hilts. According to the

⁶ "Book of Jewels". UzRFASHI inv. 1273/II. - 144 a- 152b. sheets.

⁷ "Book of Jewels". UzRFASHI inv. 1273/II. – sheet 145 p.

⁸ Turayeva S. R. " Javohirlar risolasi"- ma'danlar haqida muhim manba. // Sharqshunoslik. Toshkent. -2016. – B. 42.

⁹ "Book of Jewels". UzRFASHI inv. 1273/II. – sheet 146 p.

¹⁰ "Book of Jewels". UzRFASHI inv. 1273/II. – sheet 147 p.

¹¹ Ibn Mubarak Muhammad al-Qazvini. Javharnoma. (Minerology) OZR FA SHI. Manuscript No. 3053, sheet 38 p.

local population, jade stone is useful for treating dizziness and dizziness. It was known that everyone who keeps a hyacinth next to him will get rid of piles, his complexion will be red, and the person who keeps the hyacinth will be saved from the disease of the skin.¹²

Muhammad ibn Mansur mentions that the marble stone is a cure for insomnia, and most people keep it with them because of this property, as well as its ability to uplift the spirit and bring joy.¹³ He especially notes that the Feruza stone makes the eyes clear, gives strength to the soul, and the person who wears jewelry made of this stone has a kind and forgiving attitude towards those around him.¹⁴ Ibn Mubarak Muhammad al-Qazwini said that the content of wine in a glass made of turquoise stone does not become nauseated quickly, that the wine has a strong effect on the person who drinks it in such a glass, that looking at this stone for a long time makes the eyes clear and increases the power of vision, shabkor (at night) He writes that it cures the disease, and that eating the crushed feruza is useful in "rish" disease.¹⁵

According to scientist S.Karimova, in medieval medicine, golden heart and bones were included in the powder form of drugs that were applied and drunk for "diseases of foxes and snakes".¹⁶

In medicine, magnetic stones were also used to remove an iron arrowhead stuck in a wound on a person's body, a needle tip stuck in a blood vessel, or a piece or piece of various metals stuck in the stomach. About this, Muhammad ibn Mansur informs that there are several types of "magnetis" - magnetic stone, mixed with gold, with arziz (colored alloy), with silver, and mixed with iron. "Magnet" - a magnetic stone has the property of attracting whatever metal it is mixed with. Iron and copper are minerals that can be combined. Most silver magnetic stone is white in color and it is also called "hajrul qabur" - gravestone. People also put it in graves. If the teeth are washed with silver magnetic stone powder, it has teeth whitening properties.¹⁷

In medicine, blacksmiths also made medical instruments in Turkestan khanates.¹⁸ In the Ichan castle museum-reserve, there are 19th-century iron dental tools - pincers, muchanak (muchina) - iron pincers for plucking hair, barbers' working tools are made of steel, and the handle is made of wood. 'lgan poki - items made by craftsmen, such as razors, are stored¹⁹. In 1860, Gulibefa-de-Blocville, a British officer captured by the Turkomans, was bleeding from his eyes. wrote that they had learned to make such instruments from the Jews.²⁰

The people of Turkestan knew how to clean the water by putting bitter stones and silver minerals in it for drinking or using it as an antiseptic. Putting a piece of silver in the baptism of newborn babies or wearing a silver coin or a piece of silver to young children means that this metal is aware of its healing properties.

Conclusion

¹² "Book of Jewels" UzRFASHI inv. No. 1273/II 152b. sheet

¹³ Muhammad bin Mansur. Javharnoma. UzR SHI No. 2294 / II numbered manuscript - 203 p sheet.

¹⁴ Muhammad bin Mansur. Javharnoma. UzR SHI No. 2294 / II numbered manuscript - 204 b sheet.

¹⁵ Ibn Mubarak Muhammad al-Qazwini. Javharnoma. (Minerology) OZR FA SHI. Manuscript No. 3053, sheet 63 p

¹⁶ Karimova S.U. The role of Central Asian scientists in the development of chemistry and pharmacology of the IX-XII centuries. T. 2002. -. 126 p.

¹⁷ Muhammad bin Mansur. Javharnoma. UzR SHI No. 2294 / II numbered manuscript -215 b-217a pages.

¹⁸ Turayeva S. R. XVIII asr ikkinchi yarmi – XX asrning 70- yillarida Xiva xonligi hunarmandchilik terixi. "Yangi Nashr", – Toshkent. 2018. – B. 96.

¹⁹ Ichan Castle Museum Reserve Fund. GXMZ KP 6227 / 46 inv. 131.

²⁰ Gulibefa de Blocquil. Fourteen-month captivity among the Turkmens // Turkestan collection. – St. Petersburg, 1869. T. 16. – P. 37.

In conclusion, it is interesting to say that the trade of mining products between Turkestan khanates and other foreign countries was carried out intensively. Most of the goods produced by local artisans are exchanged for the raw materials of mining products of the state. Because in many khanates of Turkestan, it is forbidden to take out gold, silver, and copper in the form of money. Merchants brought metal from the country to foreign trade only in the form of craft products, and exchanged it for necessary minerals. This mining raw material, whose value is determined, was handed over to the state treasury and received as money.

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**Improving food supply in the conditions of innovative economy
issues of applying the experience of foreign countries**

Abstract: this article analyzes the experience of foreign countries in improving food supply in the conditions of innovative economy. In particular, the experiences of countries such as the Russian Federation, African countries, Canada, Great Britain, France, Italy, Bulgaria and Georgia were analyzed and a number of proposals were developed.

Key words: food supply, improvement, outsourcing, foreign experiences, material supply, digitization, entrepreneurship, Armed Forces.

Implementation of material support of the Armed Forces through the use of external sources took place in many countries of the world in different ways and styles. Military outsourcing has completely covered one or another field of military activity in countries with large armies, such as the United States, Canada, Great Britain, France, and Italy.

At this point, it should be emphasized that the implementation of the outsourcing system and the existing mechanisms in the process of its direct organization are interrelated and have similar aspects, principles and laws.

In particular, the application of the outsourcing system in the organization of army supply and the experience of Russia and several Western countries in its implementation serve as a scientific basis for further increasing the efficiency of the outsourcing system in the material supply of the Armed Forces of the Republic of Uzbekistan.

According to the analysis of the available data, the Russian Federation (RF) uses the experience of NATO in the implementation of the use of outsourcing services of foreign enterprises in the field of material support of the combat activities of the troops.

Since January 2012, as a result of the defense reforms of the Russian Federation, maintenance and preservation of military settlements, cleaning of relevant areas and residential areas, bathroom-laundry service and individual tailoring of uniforms, as well as repair of military vehicles and combat equipment. and outsourced part of the service and catering functions to external companies. The practical experience of the Russian Federation was introduced to feed the troops in order to free the army from non-specific tasks.

At the same time, the current situation demands the implementation of necessary reforms to eliminate existing difficulties and shortcomings in order to achieve the intended goal of outsourcing. Most of the major problems in the outsourcing implementation system were mentioned at the collegial meeting of the Ministry of Defense of the Russian Federation.

The first problem is the sharp increase in budget expenditures as the main problem (increased by 50 billion rubles per year).

The second problem is the non-transparency of outsourcing enterprises (outsourcers) and their activities, as well as the lack of unified systematic control over them. The influence of the Ministry of Defense on the control of the outsourcing system is limited only by its participation in the elections to the Board of Directors, which does not affect the operation of the system in a practical way.

The next, third problem is the low quality of services, which is mainly found in the cleaning system and the fact that several business entities perform outsourcing activities in a tiered (intermediary, intermediary) form. The number of intermediary enterprises, which are especially common in the field of transport, has reached 5-8. That is why the Ministry of Defense is currently involved in lawsuits with many enterprises (1 billion rubles on average).

The fourth problem is the slowness of the operational speed of the units of the "Oboronservis" JSC. Business activity should be interested in increasing speed and shortening the execution time of issues that need to be implemented. In practice, it is the opposite.

It can be safely said that in some cases, the certification of completed work takes up to 1-2 years. At the same time, the quality of services is not improving, ultimately, an increase in receivables and payables was observed.

As of August 19, 2014, the state of indebtedness to service providers is 90 billion. reached 100,000 rubles, and domestic debts for monthly salaries amounted to nearly 1 billion rubles.

There is no other view of the current state. After that, according to the instructions of the leadership of the Ministry of Defense, a number of scientists and experts were given the task of publicly pondering over this problematic situation and developing appropriate solutions for ways out of it.

Without abandoning the outsourcing system (the issue of exemption from non-specific tasks for the army worked), solutions to achieve its effective results began to be sought.

"Oboronservis" holding will be completed with the existing 9 subholdings and replaced by 4 subholdings that include construction and communal services, repair production, trade and household services and supply, communication and telecommunication services. they spent After that, the holding was renamed "Garrison" JSC.

The existing subholding "Oboronsstroy" was formed as a single subholding providing construction and utility services. In the structural structure of this subholding, in addition to housing and communal services, a single production and transport logistics center was opened at the base of the "1470-material and technical supply department" OAK.

This center consists of transport logistics complexes located in the districts, which provide for the implementation of material supply and logistics directly in all districts.

The need for the creation of this structure arose due to the real situation in the tactical training of the troops and the need to move troops, personnel, and material resources from one area to another.

In general, the most important attention was paid to the unified management system in the effective organization of the activities of "Garrison" OAC in the quality and timely implementation of material supply through outsourcing.

They included, first of all, the development of the issues of introducing a unified approach to the use of material means and products.

The second was the issue of coordination of corporate organizations and their activities within the corporate holding. The tasks of each subholding were clearly defined, as well as a schedule of corporate activities for the reorganization of "Oboronservis" was drawn up.

In December 2014, "Oboronservis" JSC was completely reorganized into "Garrison" JSC. In the course of the above reforms, no changes were made to the personnel in the block of

providing household services and catering. "Slavyanka" JSC hotel services were handed over to "Garrison" JSC "Voentorg" JSC.

In order to ensure the implementation of the Resolution of the President of the Russian Federation dated January 24, 2013, in order to carry out a unified state policy on the development, production, maintenance, repair and destruction of military and special equipment developments. integration of repair structures and the Defense Industry Complex was carried out.

Reforms in the organization of the subholding for the provision of communication and telecommunication services were transferred from the main shareholder "Voentelekom" OAC to "Garrison" OAC.

Currently, the situation is fundamentally changing. A special investment block of JSC "Garrison" is being established. Enterprises of the investment block do not implement state orders and, in their own way, carry out development activities independently, not as a structural structure of the CEC.

Another unique aspect of this unit's activity is that it produces a strategy with reasonable proposals for the leadership on the effective use of all assets and their rational use, without repeating the old mistakes in the organization of material support of the Armed Forces. In addition, they will develop future plans for the use of the material and technical equipment of the Ministry of Defense, which will be of economic benefit, and make appropriate proposals.

As a result of the implemented reforms, significant positive changes in the volume of work and its quality have been achieved in the outsourcing system of material supply organization.

Up to now, up to 50% of the total work planned in the previous "Oboronservis" is being carried out effectively up to 100% of the types of supplies received separately through "Voentorg". That is, "Voentorg" JSC conducts activities on the types of planned, promising, specific supply necessary for the Armed Forces.

The work carried out in 2014-2015 brought a positive economic result of about 22 billion rubles at the end of the year.

On March 11, 2019, the Minister of Defense of the Russian Federation, Sergei Shoigu, spoke about the material supply outsourcing system at a meeting of the relevant committee, emphasizing that the system does not justify itself in the activities of units in combat situations. That is, the majority of units in combat operations were not fed on time or completely (including the events of January 2022 in Kazakhstan). that technical equipments that have occurred in the event were not provided with technical services and repairs were not carried out on time, as well as the units providing technical services of the Ministry of Defense are more than external executors brought economic benefits as an argument. In addition, he said that there are also sectors of the system that have justified themselves, and he specifically pointed to the housing and communal sector as an example.

In conclusion, the experience of the implementation of the outsourcing system in the Armed Forces of the Russian Federation shows that as a result of the transfer of non-specific tasks and services to external resources in the organization of the outsourcing system of the material supply of the Armed Forces, the troops In addition to achieving a number of positive results from the point of view of combat training, military and special training, the following negative results also occurred:

- increase in budget expenses;
- high level of corrupt structure, non-transparency of outsourcing enterprises and their activities, and weak real control over their activities;
- low quality of service and a large number of joint ventures and their schemes in the organization of outsourcing;
- increased indebtedness to outsourcers;

The main reasons for these deficiencies are as follows:

- an insufficient level of regulatory and legal framework;
- excessive centralization of the management structure in service outsourcing enterprises;
- slow speed and insufficient legal framework.

As a result of the fundamental reforms carried out to increase the quality and efficiency of outsourcing services, by transforming Oboronservis OAC into Voentorg OAC, the number of partner enterprises in the implementation of the outsourcing system has decreased, the quality of service has increased, and prices have been reduced. Significant economic savings were also achieved.

The work to be carried out in the Russian Federation in the future is being continued by systematic monitoring by "Voentorg" OAC, and periodically analyzing and developing proposals for existing problems and shortcomings. By carrying out these works, in the organization of the material support of the National Guard through the outsourcing system, it is possible to achieve the following in the future:

- attracting large investors in relevant fields;
- simplification of the existing contractual and financial system;
- allows to reduce the cost of services.

As for the essence of the experience of Western countries in this field, outsourcing includes the full implementation of the provision of the Armed Forces at the expense of third-party investment.

Military outsourcing services in Western countries

In the early 1990s, when bipolar military confrontations subsided and military spending decreased, it occurred in the United States and NATO member countries.

Of course, the role of the private sector has gained special importance in developing countries where outsourcing services have been established. In any country where there is little state intervention and management in the economy, the private sector has been the locomotive of the national economy.

Initially, outsourcing relationships developed in continental Europe, with the French and Germans adopting these relationships in a limited way.

Since the 2000s, outsourcing services have been massively developed in all European countries, even in African countries, where, within the framework of the military industrial complex, troop transportation, material and technical support, organization of communication services, training and issues of combat training became one of the most important directions.

Outsourcing in foreign countries is distinguished by its special organizational structure and the uniqueness of its implementation mechanism. That is, outsourcing is a form of public-private partnership between the parties entering into a contract in the course of mutual commerce.

To the question of what are the main differences and similarities between the current state of the experience of the Russian Federation in organizing the material supply of the troops through outsourcing and the systems in foreign armies, first of all, we will look at several examples of the foreign experience of improving the feeding of military personnel through the outsourcing system. we will be able to consider as part of the transition.

For example, in the United States, the Logistics Department of the Ministry of Defense is responsible for the food of the military personnel of the Armed Forces. Organization of meals is carried out by enterprises that have won on the basis of relevant tenders. Armed Forces

Food matters in the Canadian Armed Forces are directly handled by the Directorate of Logistics (J4). The civil business entities that won the open tenders in the respective bases will organize the catering. Meals for military personnel are carried out according to the established procedure in canteens consisting of officers', sergeants', and privates' halls. According to some sources, the cost of one day's food for one military serviceman in the USA and Canada is estimated to be around 8 US dollars (67 thousand soums).

Today, in most kitchens in the British Armed Forces, private enterprises provide outsourcing services based on contracts with the respective commanders of the military units. Officers and non-commissioned officers eat separately in sergeants' canteens and in officers' clubs. It is noteworthy that in the British army, personnel with special knowledge capable of independently preparing food and service work in field conditions are provided for in the organizational structure. For this purpose, they will check the process of eating in the canteen for a certain part of the ground troops and determine the proportional number of service personnel.

The process of feeding personnel in the French Armed Forces is carried out through a network of state and private enterprises under the leadership of the State Trade and Industry Organization "Economat Armed Forces". Contracts for 25-30 years are concluded with enterprises on a legal basis. Free meals are provided to all military personnel in military units, in barrack conditions, as well as to military personnel who are on duty abroad.

In Italy, the provision of food to military personnel of all categories is organized free of charge in the field at the expense of the Ministry of Defense. In everyday conditions, only conscripts are fed free of charge. Regular and contract servicemen eat at their own expense through canteens in the state of the military unit.

There are two main types of feeding in the Italian Armed Forces: one is by bringing ready-made food to the military unit, that is, it is only necessary to heat the food. Food delivery is carried out by local entrepreneurs. The second type is cooking in the kitchen of a military unit, if the infrastructure allows cooking.

There is no need for a daily feeding system in this regard due to the established contractual basis for the implementation of food supply in the Bulgarian Armed Forces. Feeding of military personnel in the Bulgarian Armed Forces is carried out by the logistics division, which includes the activities of the enterprise that won the relevant tenders, which is part of the cooperative joint during combat formations and field exercises.

All military personnel working in combat military units, military schools and training centers of the Armed Forces of Georgia are regularly fed in military canteens of the respective state from three locations. Provision of food products and service in the process of feeding is organized through an outsourcing system.

Conclusion

In conclusion, it is interesting to say that the modern trends of using external resources in the implementation of material support of the Armed Forces are rapidly expanding their scale and geography, as well as their positive results and importance. It should be mentioned here that the analysis of foreign experience in the provision of outsourcing requires the creation and continuous improvement of the organizational-legal, institutional basis for the regulation of economic relations in this regard.

Based on the unique economic and social situation and conditions of each country, relevant reforms will be carried out in priority areas. The military economy as a component of the national economy is a complex of economic reforms aimed at meeting the needs of the military in terms of increasing its combat capability and providing it. activities should be analyzed and monitored.

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Periodontal disease

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Annotation: Periodontal disease is very common today, the origin of this disease is also said to be related to scientists.

Keywords: Tissue, sclerotic, parodont, local, whole tooth, tooth neck, main symptoms, pathological process.

Parodontosis is a chronic non-inflammatory disease of the tissues surrounding the tooth: gum, periodontal tissue, cementum, alveolar tumors.

Atrophy of some areas of the periodontium occurs along with sclerotic changes in the bone tissue, which leads to loosening of the tooth necks. The whole point is that the disease is sometimes asymptomatic, the patient does not even know about it.

However, if the disease is not treated in time, parodontosis gradually leads to the loosening of the teeth and their sensitivity to a pathological level.

Dentists divide parodontosis into the following types:

- Local: jag'ning ma'lum bir parti dagi tish bo'yinlari ta'sirlanadi;
- Fullness: characteristic symptoms appear in the entire tooth row.

- **Symptoms of parodontosis**

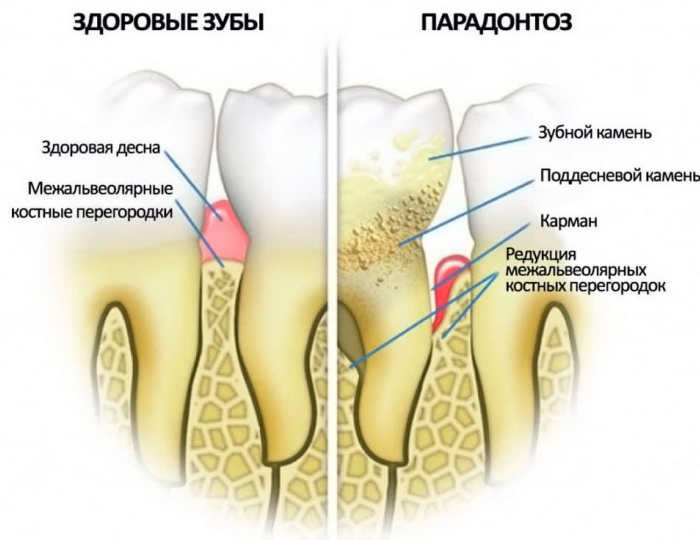
- **Doctors distinguish two main symptoms of the disease:**

- • opening of properties;
- • teeth mobility.

- **In general, the clear symptoms of periodontal disease in adults:**

- • tish bowing and rooting;
- • inventory of properties;
- • increasing the sensitivity of teeth to cold, heat, and heat;
- • tish enameling defects and color changes;
- • bone sclerosis;

visual expansion of teeth spaces; itching in milk parts.



The patient can identify the first symptoms by himself, because the normal condition and appearance of the mucous membrane is disturbed. For example, the gums lose their brightness, they become denser, the gums may bleed when cleaning the teeth, and the sensitivity of the tooth tissue increases.

Levels of development of periodontal disease

Dentists determine the degree of periodontal disease in adults depending on the level of exposure to the roots of the teeth and x-rays.

Let's start. At this stage, the changes in the tissues are almost invisible, so only a specialist can detect them.

The first stage. Milk slightly decreases the teeth from time to time, it affects cold and heat.

The second stage. The neck of the teeth is significantly opened, sensitivity and sensitivity increase, the spaces between the teeth widen, and in some places, cement instead of enamel appears.

The third stage. Milk has decreased by more than 50%. Eating food often causes discomfort and the teeth begin to loosen gradually.

The fourth stage. Milk has decreased by more than 65%. Loose teeth make eating and speaking difficult. X-rays show that only three parts of the bones remain.

Diagnosis of periodontitis

The diagnosis of periodontal disease begins with a doctor's appointment. Depending on the degree of the disease, the dentist prescribes X-ray examination (ortopantomogram). With this type of examination, it is possible to detect bone loss, osteoporosis and osteosclerosis.

Treatment of periodontal disease

Depending on the stage of treatment of this disease, it is determined by the doctor separately. Basically, patients don't notice the initial symptoms of the disease and turn to a specialist only in advanced cases. In this situation, the approach to the treatment of periodontal disease of the teeth will be complicated.

Physiotherapy treatments can be prescribed to the patient to improve blood circulation. Various techniques are used for this:

- electrophoresis;
- the impact of ultraviolet radiation;
- ultrasound;
- massage properties;

Parodontosis is also treated with the help of laser. It helps to accelerate tissue regeneration, to withstand the anti-inflammatory effect.

It fights against excess bacteria in the oral cavity, relieves swelling and reduces milk retention.

In cases of advanced disease, periodontal treatment is carried out with surgical intervention. Various cell cultures that selectively stimulate regenerative processes in the periodontium are used as biomaterials.

What drugs are prescribed for parodontosis?

The doctor prescribes drugs for treatment locally or systemically. Antibacterial drugs, hormonal drugs can be prescribed. Medicines reduce dystrophic processes, reduce inflammatory activity. All these develop metabolic processes in the periodontium, improve the nutrition of the teeth and strengthen them.

Prevention of periodontal disease

As parodontosis is often found in people with endocrine diseases, diabetes and diabetes, it means that you should monitor your health and the development of chronic diseases.

« The teeth need to be strengthened - they need to be strengthened with splints, needles or prostheses," says the doctor.

We should not forget about hygiene. Dentists recommend brushing your teeth twice a day for 4 minutes or more, removing food residues with dental floss, rinsing your mouth after every meal and changing your toothbrush every 3 months.

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CHARACTERISTICS AND PRACTICAL SIGNIFICANCE OF LAVENDER

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The abstract provides information about the practical importance, chemical composition and useful properties of lavender.

Key words: Lavandula angustifolia, cineol, geraniol, borneol, coumarin.

LAVANDA XUSUSIYATLARI VA AMALIY AHAMIYATI

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Annotatsiya lavandaning amaliy ahamiyati, kimyoviy tarkibi va foydali xususiyatlari haqida ma'lumotlar berilgan.

Kalit so'zlar: Lavandula angustifolia, sineol, geraniol, borneol, kumarin.

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В реферате представлены сведения о практическом значении, химическом составе и полезных свойствах лаванды.

Ключевые слова: *Lavandula angustifolia*, цинеол, гераниол, борнеол, кумарин.

Kirish. Hozirgi davrda o'simliklar introduksiyasining ahamiyati kamaymasdan, aksincha, ehtiyoj oshib bormoqda. Sayyoramiz o'simliklari resurslarini o'zlashtirishning yangi istiqbollarini ochib bermoqda. Ertapishar, serhosil, turli kasalliklarga chidamli, mahaliy tuproq-iqlim sharoitlariga moslashgan va boshqa foydali xo'jalik belgilarga ega o'simliklarni tanlash va sinash jarayonida ham o'simliklar introduksiyasini o'rni beqiyosdir. O'zbekiston Respublikasi Prezidenti Sh.M.Mirziyoyevning 20 maydagi PF-139-sonli dorivor o'simliklar xom ashyo bazasidan samarali foydalanish, kasalliklarning oldini olish va davolashda dorivor o'simliklarni keng qo'llash, dorivor o'simliklarning madaniy plantatsiyalarini barpo etayotgan tadbirkorlik subyektlarini qo'llab quvvatlash orqali chuqur qayta ishlashni tashkil etish va qo'shimcha qiymat zanjirini yaratish maqsadida: lavanda va shu kabi dorivor o'simliklar yetishtirish bo'yicha hududlar kesimida plantatsiyalar tashkil etilishi, bu bo'yicha qo'shimcha chora-tadbirlar ishlab chiqishga katta e'tibor berib, soha mutaxassislari oldiga vazifa qilib qo'ydilar. 2022/11" 27 Asosiy qism: O'simlikning sistematikasi. Dorivor yoki haqiqiy lavanda (*Lavandula angustifolia-officinalis* L.), Lavanda (*lavandula*) turkumi, Yalpizdoshlar oilasiga mansub yarim buta o'simlik. Lavandaning vatani – O'rta yer dengizi. Lavandaning 25 dan ortiq turi uchraydi. Kimyoviy tarkibi: O'simlik bargi va gullarining kimyoviy tarkibi-sineol, geraniol, borneol, kumarin kabi foydali moddalarga boy. Tarkibida uchrovchi kumarin sodda organizmlar va hasharotlar rivojlanishiga yo'l qo'ymaydi, shu sababdan, lavanda pedikulez, parazitlarda, shuningdek, kuyaga qarshi kurashda tavsiya etiladi. Taninlar. Virus, bakteriyalarga halokatli ta'sir etadi. Yengil ich yumshatuvchi, siydik haydovchi ta'siri bilan ajralib turadi, ichakdagi chirish jarayonlarining oldini oladi. Kislotalar- yurak faoliyatini qo'llab-quvvatlaydi, organizmdagi yallig'lanish jarayonlari bilan kurashadi. Amaliy ahamiyati: Farmatsevtikada antibakterial, og'riq-qoldiruvchi, yallig'lanishga qarshi, tinchlantiruvchi, sil, isitma, uyqusizlik. Qishloq xo'jaligida shifobaxsh xushbo'y asal olinadi. Oziq – ovqat sohasida Lavanda choyi, ziravor, shirinliklar, salatlar, sirka, jele, aroq tayyorlashda, ajinga qarshi krem, soch tokilishiga, qazgoqqa qarshi, dezodrant, antiseptik, kuygan teri-regeneratsiyasi, organizmni bakteriya va viruslardan tozalashda lavanda moylari keng qo'llaniladi. Lavanda qimmatbaho asalshirali o'simlikdir, chunki gullarining nektari shakarga boy (21-38%), va gullash davri 35-40 kun davom etadi. Bir gektar maydondan lavanda shifobaxsh xususiyatlarga ega bo'lgan 150-200 kg aromatik asal olinadi. Lavandaning o'ziga xos bir qator xususiyatlari mavjud. Eng avvalo u suvsizlikka chidamli bo'lib, yil davomida sug'orish shart emas. Eng muhimi esa 1 marta ekilgan ko'chatlar 25-30 yil hosil beradi. Undan sintezlanadigan 1 litr moy dunyo bozorida 20-100 dollar miqdorida baholanishi esa foyda miqdorini oshishiga xizmat qiladi. Uning xushbo'y hidi sizni tushkunlikdan holos etadi. Lavanda efir moyi ham huddi shunday shifobaxsh xususiyatga ega. Shuningdek guli va bargidan choy ham tayyorlash

mumkinligi uning baxosini yanada oshiradi. Lavanda yorug‘sevar, qurg‘oqchilikka chidamli, issiqsevar o‘simlik va 30 daraja sovuqqa chidaydi. Uch yildan keyin ko‘chatlar orasiga boshqa ekinlar ekib hosil olish 2022/11” 28 mumkin. O‘zbekistonda ham lavanda plantatsiyalarini barpo etish ishlari olib borilmoqda. Surxondaryo sharoitida lavanda o‘simligi ontogenez bosqichlarini to‘liq o‘tadi va gullab urug‘ berdi. Xulosa qiladigan bo‘lsak bu o‘simlikni Surxondaryo sharoitida keng maydonlarda yetishtirsak bo‘ladi.

Foydalanilgan adabiyotlar:

1. 26.11.2020 yildagi «Dorivor o‘simliklarni yetishtirish va qayta ishlash, ularning urug‘chiligini yo‘lga qo‘yishni rivojlantirish bo‘yicha ilmiy tadqiqotlar ko‘lamini kengaytirishga oid chora-tadbirlar to‘g‘risida» gi PQ-4901-son qaror.
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PSYCHOLOGY OF PRESCHOOL CHILDREN AND ITS STATUS OF
LEARNING.

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Аннотация: В этой статье описывается использование потенциала проективной методики в изучении семейных отношений дошкольных детей

Ключевые слова: дошкольное возраст, семейные отношения, «я», рисунок семьи, отношение к родителям, психологический портрет,

Annotation: This article describes the use of the potential of the projective technique in the study of family relations of preschool children

Keywords: Preschool age, family relationships, "I", family drawing, attitude to parents, psychological portrait

In Uzbekistan, positive work on strengthening families, their social protection, raising a well-rounded person, spiritually mature, physically healthy generation is being expressed. In this regard, in accordance with the decision of the President of the Republic of Uzbekistan "On additional measures to increase the effectiveness of spiritual and educational work" dated May 3, 2019 No. PQ-4307, guaranteed preparation of young people for independent life, To develop and implement a methodology based on gradualism and continuity of education, starting from the period of pregnancy and continuing until the age of 18, to direct young people to self-development as individuals, to educate them as active citizens with a wide outlook, "Continuous spiritual concept of education" was approved. Compared to social education, family education has a profound effect on children's mental world, emotions and feelings. In the current conditions, spiritual and moral relations based on universal and national values, reflecting oriental moral characteristics are being established in families, and legal, moral and spiritual foundations are being improved in families. If a healthy moral environment, a culture of mutual interaction, and a moral principle do not take deep root at home, it is inevitable that there will be a void and negative situations in the family. Many people think about the question of when to start raising a child. Many scholars have given different answers to it. In particular, Ibn Sina noted that it is necessary to deal with the upbringing of a child before its birth, from the womb, and education up to the age of five is very important in the formation of a child's personality. It is in the preschool period that universal human qualities are formed that help the child to be successful in all future activities and in life in general. All this develops in various activities through the personal activity of the child, the support of adults in a positive environment in the family.

The main task of the preschool education organization is to create a positive psychological microclimate and conditions in the organization in order to ensure the maximum development of each child's personality and his preparation for the next stage of development. What is required from parents and educators is a lot of patience, love and a scientifically based approach to child rearing. As a result of proper education, the child is ready to think

independently and take a bold step into a big life[10]. It is very important for preschool children to understand their "I" in the family. Educators and psychologists have studied the problems of the family, its traditions and traditions, the influence of the family on the formation of the child's personality in many studies. A child is not only a product of parental influence. He understands and accepts his family in his own way. Defines his place in the family in interaction and realizes himself as a person in the family. Children evaluate family events differently than adults. Only when we get used to seeing the world around us through the eyes of a child, can we properly understand them, help them with their excitement and sorrow. In today's applied psychology and child psychology, the perception of the child as an individual in the family of preschool children and its impact on the general mental development of the child, the formation of ideas about social roles within the framework of the interaction of family members, the composition of communication skills and competencies through imitation of adults such issues are being studied.

DISCUSSION AND RESULTS

Currently, there are many psychodiagnostic tools, tests, methods, questionnaires and they are widely used. One such diagnostic tool is the popular projective test called "Family Picture". The famous "Family Picture" test, developed by the Estonian psychologist G. Homentaukas, is a tool that helps adults see the world through the eyes of a child. This test provides an understanding of the child's personal assessment of his family, his relationships with family members, what the child cannot perceive, what he feels with strong emotion. What worries the child subconsciously, the same things are expressed in children's drawings. A family picture is a psychological portrait of a child's personality. This test can be used in children between 3 and 10 years of age. Psychologists use this test to study the "I" of the child in the family. This test is convenient and popular in pedagogical and psychological practice. This test can be conducted by teachers, psychologists of educational institutions and even parents.

To conduct the research, you need a white paper 21 x 29 cm in size, an eraser. The child is told: "Please draw a picture of your family." But what "family" is is not explained, because the test requirement requires it. There is no time limit when the task of drawing is given. When the child completes the task, you should pay attention to the following: the sequence of drawing the contents, deletion of the contents, giving the child comments, emotions, etc.

After completing the task, the child will be asked the following questions and interviewed:

- 1) Tell me, who did you draw in this picture?
- 2) Where are they?
- 3) What are they doing?
- 4) Are they happy or bored with something?
- 5) Which of them is happy? Why?

6) Which of them is very unhappy? Why?

When analyzing the results of the "Family Picture" methodology, it is desirable to know the age of the child, the number of family members, and the age of the brothers, sisters, or sisters.

Also, when analyzing a picture drawn by a child, it is necessary to pay attention to the information in the conversation and the following scales:

1) The child's real family is compared with the family picture he draws. If the relationships and atmosphere in the family are positive, the child will draw a picture of all members of the family. If one of the family members is not drawn in the picture, then the family situation is not perfect.

2) If the picture depicts people who are not related to the family: a) neglect, isolation, b) strong level of anxiety.

3) usually, children forget to draw with which member of the family there is a conflict problem. In most cases, brothers or sisters do not draw pictures of siblings. With this, the child expresses his superiority in the family, his lack of love for his father and mother. For example, a child drew himself between his father and mother, but did not draw his younger brother or sister at all.

4) If the child does not draw his picture or draws only himself instead of his family, then this indicates a lack of unity in the family.

5) If, instead of his family, the child draws animals and birds, then the child lacks attention and emotional tenderness.

6) If the child drew a picture of family members holding hands and in a row, then the psychological climate in this family is good. If not, it means the opposite.

7) If the family members are drawn in groups, it means that there are small groups in the family

8) The presence of many compositions and colors in the clothes of family members indicates positive family relations, and on the contrary, if there is enmity in family relations, the bodies of family members are drawn incompletely, without clothes or unfinished [8].

9) Children usually draw their father and mother very big. So, family relationships are based on equality, the child feels like an adult in the family.

10) If children draw themselves bigger than their father and mother, then the level of self-esteem of the child is very high.

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11) If the child feels very small compared to other family members, he/she needs to be cared for by his/her parents.

12) If the child drew his picture with his hands up and his fingers extended, this indicates his aggressiveness. Sometimes such pictures show that the children are aggressive towards the people around them, but this condition is hidden and the child is strong and wants to dominate others.

13) If a child draws the hands of family members with fists formed and fingers in a long position, then he feels that this family member is aggressive towards him.

14) If the child has drawn his teeth big, then he has a strong tendency to bite, shout, and be rude. If the child draws other family members in such a position, he will feel fear and hostility towards this family member.

The family picture test is related to the child's age characteristics. Children aged 3-4 draw the human body incompletely with lines. The pictures of 5-7-year-old children are much richer, the body structures are complete, and the pictures are completed. Therefore, family pictures drawn by children should be carefully analyzed paying attention to every detail. A quantitative assessment system was developed for this test and 5 different symptom complexes were distinguished. 52 5-7-year-old children attending MTT participated in our study. It is known that the method of kinetic painting of the family does not only reflect the present and the past, but also focuses on the future, because the child tries to understand the situation while drawing, family relationships are resolved.

Kinetic painting of the family consists of two parts: painting and talking after the painting. During the study, children were given white paper, a black pen and an eraser according to the instructions. After the task was explained, the children drew with great interest. Children were divided into 2 groups, 1st group was 5-6 years old, 2nd group was 6-7 years old. During the drawing with the children, they commented on the pictures they were drawing, including, mom is standing here, my sister is not visible because she is asleep, can I draw my mom twice because my dad is not there?, can I draw my grandfather? such comments were observed. The children showed the pictures they drew to each other and explained them. Based on the results of the interview with the children who completed the drawing, the analysis was generally reflected as follows.

CONCLUSION

The method of kinetic painting of the family does not only reflect the present and the past, but also focuses on the future, because the child tries to understand the situation when drawing, interprets the interpersonal relationships in the family expressed in his picture in his own way, and shows his vision of the family. In each picture, the social roles of "parents" in the imagination of the child are reflected, the psychology of family relations is visible. According to the results of the experiment, 71.4% of the test subjects drew their father and mother too big, so it can be concluded that the relationship in the family is based on equality, and the child feels like an adult in the family. The presence of an environment that has a positive effect on the

formation of the child's personality in such families is certainly gratifying. However, 19% of children drew animals and birds instead of their families, it is a pity that such children lack attention and emotional tenderness in their families. A child growing up in such an environment has low self-confidence, shyness, difficulty in communicating, inability to think independently.

According to researchers, the relationship between parents and children is the leading factor in the formation of a child's personality. Studying the perceptions of preschool children about the family, information about the family environment of each child and the attitude of the parents to the child serve as an important resource for educators-pedagogues in cooperation with the family. This ensures the quality and efficiency of the educational process carried out in preschool educational institutions.

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ISSUES OF EVOLUTIONARY DEVELOPMENT IN THE SYSTEM OF SIMPLE SENTENCES OF THE UZBEK LANGUAGE (20TH CENTURY)

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Resume: In the article, the issues of development in the field of the syntax of the Uzbek literary language were considered, the changes in the syntactic structures of the Uzbek language under the influence of linguistic and non-linguistic factors were studied on the basis of materials of the 20th century and they were compared to the materials of the old Uzbek language.

Key words: syntax, development, linguistic and extralinguistic factors, syntactic devices, old Uzbek language, modern Uzbek language, syntactic redistribution, functional sentence types.

The Uzbek language has been experiencing evolutionary development trends based on the needs of the people's communicative process for centuries. In particular, the 20th century was one of the periods that left a significant mark on the development of the Uzbek language. It can be seen as an objective fact that the historical changes that occurred in the life of the people during this period, the rapid progress in the political, economic and cultural spheres that took place in the development of the society, and the innovations in the field of press, mass information, school and education played an important role in the evolutionary development of the Uzbek language.

By this time, the changes that occurred in the system of simple sentences of the Uzbek literary language, firstly, with the evolution and improvement of the sentence forms in the old Uzbek literary language, secondly, with the widespread use of compact, effective syntactic constructions typical of the current Uzbek literary language, and thirdly, the blessing of other languages as a result of its influence, some syntactic constructions appeared and strengthened. The first and second of them can be evaluated as the results of the linguistic development of the Uzbek language based on its own internal resources, and the third as an external influence, an extralinguistic factor. As a result of these factors, the following changes occurred in the development of the system of simple sentences of the Uzbek language in the 20th century:

1. In the old Uzbek language, the case of dropping or keeping the possessive was widely used, and there were certain reasons for its dropping. According to researchers, the first sentence of a work or text, a new paragraph, composed of the author's sentence, is always possessive, and the possessive may be omitted in subsequent sentences. (1, 1). By the grace of God Almighty and by the intercession of His Holiness the Lord of the Universe and by the efforts of the holy people, on Tuesday, the fifth of the month of Ramadan, in the year eight hundred and ninety-nine, I became a twelve-year-old king in Ferghana region (from "Boburnoma"). In the works published in the 20s of the XX century, the hiding of the owner and the preserved cases were used. Anyway, it is more common in the old Uzbek language compared to the modern Uzbek language.

2. In the old Uzbek language, the words kamina, fakir, qul, which denote the possessive function, were used as a personal pronoun. This statement expressed humility. Fakir also told a story and a ghazal (Ogahi). I was a thirteen-fourteen-year-old boy in that area. (Odil Yakupov, "Diyonat"). Nowadays, these words are not used in the possessive function, and this is due to an extralinguistic reason. It has become a tradition to use the pronoun "we" instead of "I" in order to express humility.

3. In modern Uzbek language, it is a literary norm to use the verb participle in the singular form when it is a singular collective noun denoting possessive persons. The regiment returned to the front line at the end of May. (A. Qahhor). In the old Uzbek language, in such cases, the participle is often used in the plural form.

This is evident in the written sources of the end of the 19th century and the beginning of the 20th century: Andagm people donated ten thousand soums to build a madrasa called a gymnasium for the education of young girls ("Turkistan region" newspaper). In such sentences, the use of the participle in the plural continued in the 20s and 30s of the 20th century: The courtiers returned to their rooms freed from their day's work ("Otkan kunlar"). In the modern Uzbek literary language, it is decided as a literary standard that if the participle is singular and the participle is singular, and the participle is plural if it is represented by a collective noun: The peoples want peace - the peoples want peace.

4. In the old Uzbek language, the definite article all, bari, all, which means to generalize, come in the singular form when the participle is plural: Everyone turned their faces to prayer ("The days gone by"). In the modern Uzbek language, the possessive participles expressed by the singular pronouns "bari", "all", "all" come in the singular number. Only poetic works are excluded from this.

5. In modern Uzbek, there are two situations in the compatibility of the participle with the third person possessive:

a) when referring to inanimate objects in the plural, the participle is always used in the singular (The flowers have opened. The fields are being plowed):

b) the participle can be used both in the singular and in the plural when referring to living objects with a plural number (The children are going to school. The children are going to school). In the old Uzbek language, when referring to inanimate objects, the participle was also used in the plural (I later found out that from the Turkic word, ta and dal are interchangeable with each other with the help of local economy). Such a situation can be seen in the publications published in the 20s of the 20th century. Red carpets and royal blankets filled the house. (1924 edition of "Bygone Days"). These indicate that the tradition of the old Uzbek literary language continued at the beginning of the 20th century, and this tradition became even more popular under the influence of the Russian language in later times, which is confirmed in the press materials: construction organizations perform construction and assembly work worth 120 thousand som (Toshken Akshomi newspaper)). Prof. A.G. Ghulamov assessed: "This increase in adaptation is one of the facts that shows the progressive role and influence of the Russian language in the development of the Uzbek language" (2,92).

6. In the Uzbek language, the suffix -s ensures the plural compatibility of the participle with ega. In verb participles, the suffix -(i)sh can also reveal such a match. In fact -(i)sh suffix is used to form the singular aspect of the verb. In the materials of the 20s of the 20th century, this form does not indicate the plural. By the 1930s, the occurrence of this form in the plural function becomes a little more active: Mirsoat and Anavi are moved by Mulla Obid's determination.

7. Over time, there have been significant changes in the development of plant forms. Structural and functional changes have occurred especially in the use of nouns. It is known that in Uzbek, the noun participle often comes in the form of a preposition. But since the 30s and 40s of the 20th century, the nouns used in conjunctions of place, exit, and departure began to be used as participles. Such nouns were actually used in a secondary role, according to the usual rule. As a

result of the falling or hiding of the cut, such secondary pieces also take on the function of the cut. For example, for the anniversary of our Victory-capital. Scientific achievements - to the economy. Vegetables for the table of our fellow villagers (Tashkent evening). The appearance of such constructions in the syntactic structure of the Uzbek language was a direct result of the translation of such sentences in the Russian language.

Also, in the modern Uzbek language, the word in the accusative case does not function as participle. In the old Uzbek language, they were used as participles together with conjunctions. This can be seen in the following examples: This stick is the tour of Moses ("Tafsir" page 28). Whose is this reed? Aydi: This boy's turur (Rabguzi, p. 31). This matla is aningdurkim (Navoiy).

A. Matgoziev notes that the forms of - and - are used in the Uzbek language of the 19th century as participles (pages 3, 31-32). This letter is from someone else. Is it a continent or something else (Badoe-ul waqae (242.59 b). Later, the accusative affix -niki was formed and the participle form was formed.

8. In the construction of the syntax of the old Uzbek language, the role of the conjunction was extremely large. He actively participated in the participle function with the participle. With the passage of time, the connections have changed, and as a result of historical development, they have come to the form of turur durur erur dur dir.

In the current Uzbek language - dir is not used in I, II persons. Its function is occupied by the verb forms - man, - san, - you, - miz, the form - dir is used only in the third person. This is used only in the third person. This is explained by the fact that the third person does not have a formal indicator. For example: I am a student. You are a student. He is a student.

9. In the syntactic construction of the Uzbek language, as a result of the syntactic re-division, the syntactic constructions gained compactness, smoothness and smoothness, and caused the functional change of the parts of the sentence. Prof. A. Ghulomov, he needs to go - He needs to go. I have to say- I have to say.

We have to do - We have to do, that the constructions of the type have changed as a result of the development of the language, that in these constructions, his, my, our particles are demonstrative determiners, the particles of go, say, do have, the particles of must, must, should have become participles, due to the development of the language, this

points out that the clauses are combined to form a participle, that the word in the nominative case is used in the main case and is transferred to the possessive function, and this is a syntactic re-division (2.73). As a result of the evolutionary development of the language, the attributive compound has become a predicative compound. In the 20s and 30s of the last century, these two forms were used twice, from the middle of the 30s, the use of the predicative compound form became active and won over the attributive form. Today, the use of the predicative conjunction is established as a literary norm.

In the development of the Uzbek language in the 20th century, under the influence of a number of linguistic and non-linguistic factors, many changes took place in the system of active and inactive constructions, and in the functional types of sentences. In particular, new structural changes have occurred in the construction of indicative, interrogative, and command sentences, which can be evaluated in terms of the influence of non-linguistic factors on language development. These are detailed in some sources. (4.183-187). So, the evolutionary pace of language development has been constantly developing on the basis of these two factors, which leaves its significant traces in the field of grammar as well as in other fields.

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INCREASING SOCIAL AND POLITICAL ACTIVITY OF WOMEN.

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Abstract: Studying the importance of the reforms implemented in Uzbekistan today to increase the socio-political activity of women and the measures taken to support women, taking into account our history and our current situation in the implementation of tasks, analysis and development of necessary proposals and recommendations is of urgent importance. One of the common features of political processes is that the main source of the political process in any country is the conscious activity of the public. If people take an active part in the political life of the society, the political processes will accelerate, and in such conditions, the active action of any political institutions will give its effective result. As political activity marks the conscious political activity of people and the progress of political processes, it requires the active participation of every member of the society in the political work carried out in the state.

Key words: women, politics, political activism, "women's wing", social activism, *social and political activity*.

The family is one of the ancient institutions of civil society, which has followed a complex path of development. Man alone would not have been able to survive in primitive times. In primitive times, man lived as a —Big family, people in it had close relationships and were separated only into the category of parents and children. The emergence of interest in the family problem is not accidental, because for several thousand years the family has been the basis of society and they have been directly influencing each other. Not much attention was paid to the legal aspect, stressing that the family, marriage is divinely established by the priests and the church. A family should be understood as a small society of one person, the union of a man and a woman is the basis of this society. This family may consist of children born from the union of one woman and a man or several women and men, and there may be mutual rights and obligations between them, and these rights and obligations may be regulated by customs and laws. These families live under one household or can live in several houses as family groups. The dictionary defines a family as a group of close relatives who live together. In the philosophical dictionary, it is explained that the family is a form of creating personal living conditions as a form of social society, and it is a common economy based on relationships between men and women, parents and children, siblings and other relatives based on kinship and conjugal relations.

Currently, women make up 45 percent of the workers and employees working in various fields and industries in our country. In particular, about 1400 women are working in leadership positions in the system of state and public organizations. 17 of them are senators, 16 are deputies of the Legislative Chamber of the Oliy Majlis, and 1075 are members of local councils of people's deputies. Dozens of our sisters are "Hero of Uzbekistan", "Scientist of Uzbekistan", "People's Teacher of Uzbekistan", "People's Poet of Uzbekistan", "People's Artist of Uzbekistan", etc. received titles, orders and medals. Among them, more than 500 doctors of science and academicians, thousands of candidates of science are diligently serving the development of our country with their knowledge and talent. The medal "Reputable Woman" was established for

women who have shown activity and initiative in the life of society and the state, who have made a worthy contribution to the formation and well-being of the family, the protection of motherhood and childhood through their effective work.

Protecting the reproductive health of women and girls, making them healthy, and developing special health programs for women of different genders is one of the issues of high social necessity and meeting the requirements of the current state policy, in particular, the Decree on the Strategy of Actions for the Further Development of the Republic of Uzbekistan. Reproductive health of girls is inextricably linked with preservation of the nation's gene pool, protection of public health, introduction of preventive medicine practice, promotion of healthy lifestyle and implementation. Despite the measures taken, there are also specific problems related to strengthening the health of mothers and children and women. Among them, conducting targeted research on socio-economic factors affecting the level of maternal mortality, measures to prevent anemia, changing the local mindset on pregnancy care, forming a loving attitude towards pregnant women, involving men in these issues, increasing their thinking and knowledge on the basics of reproductive health, anemia, tuberculosis, as well as the wide distribution of medical information about the consequences of iodine deficiency and iron deficiency, and taking measures to prevent reproductive diseases.

Institutions of civil society have a great role in ensuring the rights and freedoms of women and increasing their social and political activity. Because public organizations of a non-state nature, representing the interests of various groups and strata, are today recognized as an important institution of modern civil society. By widely involving women in such organizations, it is possible to ensure their rights and freedoms, and at the same time, their direct and indirect participation in state and community management is ensured. Today, the work carried out with women working in the fields of science and education in our country can be divided into two directions. After all, 72% of the employees working in this field are women. The first direction is to further increase the socio-political activity of women working in educational institutions, to further improve the work of ensuring their active participation in the reforms implemented in our country, and this direction is the development of our country. is one of the important factors. This task can be implemented by further strengthening the activities of primary organizations in educational institutions. In particular, paying attention to increasing the economic and legal knowledge of women in educational institutions, strengthening prevention of delinquency and crime, and ensuring that teachers observe the dress code and etiquette are also an important component of the reforms carried out in our country today.

In conclusion, it should be noted that women in Uzbekistan actively participate in the political life of the state and society, the reforms implemented have created the necessary opportunities for ensuring the rights and freedoms of our women, intellectual and spiritual growth. Based on the above, we believe that it is important to carry out the following activities in order to increase the socio-political activity of women in the society: First, it is appropriate to conduct scientific and practical research on the increase of political and social activity of women. Also, in determining the research topics, it is appropriate to proceed from the tasks defined in the development strategy of New Uzbekistan to increase the socio-political activity of women; Secondly, conducting scientific-practical conferences and sociological surveys aimed at increasing the political and social activity of women became important; Third, take advantage of various interactive services to increase women's chances of becoming members of a political party. It is

appropriate for each political party to review the activities of "women's wings" and expand the scope of projects and activities aimed at increasing the political activity of women.

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APPLICATION OF MAGNETITE SORBENTS FOR PURIFYING WATER
FROM RADIONUCLIDES

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Annotation

The article presents the results of a study on the use of magnetite sorbents based on iron oxides (hematite). The sorption abilities of the resulting sorbents have been studied and the effectiveness of these sorbents for treating wastewater from natural cesium and strontium radionuclides has been proven.

Keywords. Natural radionuclides, cesium-137, strontium-90, radiation, wastewater, wastewater treatment, magnetite, hematite, sorbent.

ПРИМЕНЕНИЕ МАГНЕТИТНЫХ СОРБЕНТОВ ДЛЯ ОЧИСТКИ ВОДЫ ОТ
РАДИОНУКЛИДОВ

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Аннотация

В статье приведены результаты исследования по применения магнетитных сорбентов на основе железоксидов (гематит). Изучены сорбционные способности полученных сорбентов и доказаны эффективность этих сорбентов для очистки сточных вод от природных радионуклидов цезия и стронция.

Ключевые слова. Природные радионуклиды, цезий-137, стронций-90, радиоакция, сточные воды, очистка сточных вод, магнетит, гематит, сорбент.

Введение

В Узбекистане очистка сточных и природных вод от природных радионуклидов не проводится. Но настоящее время концентрация природных радионуклидов возрастает ден за днем и определение, и очистка природных радионуклидов является актуальным. В ведущих странах технология очистки воды от радиоактивных загрязнений применяется природные сорбенты. Это, во-первых, связано с дешевизной и доступностью природных минералов, что позволяет осуществлять их одноразовое применение. Во-вторых, ионообменные смолы имеют низкие прочностные и термические характеристики. А также, природные сорбенты, в отличие от синтетических сорбентов, обладают повышенной избирательностью к таким ионам, как цезий, стронций. Поэтому их использование обеспечивает полное удаление наиболее долгоживущих и наиболее токсичных изотопов цезия и стронция из воды. Некоторые природные сорбенты устойчивы к ионизирующим излучениям, а поглощенные ими изотопы можно жестко фиксировать путем брикетирования и обжига с наполнителем при высоких температурах.

Области успешного применения природных сорбентов могут быть существенно расширены путем активирования, позволяющего придать им дополнительные свойства [3]. Под активацией понимают обработку природного минерала, способную увеличить такие показатели, как сорбционная емкость, пористость, удельная поверхность [4].

Создание новых, высокоэффективных сорбционных технологий невозможно без глубокого, детального изучения физико-химических свойств и закономерностей, объектов сорбционных процессов, состава и структурных особенностей сорбционных материалов, механизма их взаимодействия с растворами, подвергающимися глубокой очистке от ингредиентов различной химической природы.

В связи с этим представляется необходимым рассмотреть некоторые аспекты в модифицировании природных сорбентов.

Цель исследования

Изучить сорбционные характеристики магнетитных сорбентов для использования их при очистке сточных вод от природных радионуклидов.

Материалы и методы исследования

Активные центры магнетитных сорбентов представлены гидросиликатными группами поверхности с избыточным отрицательным зарядом, связанным с различными структурными позициями и ненасыщенными связями на границе структурных слоев, а также обменными катионами, компенсирующими избыточный заряд кристаллической решетки.

Магнетитные сорбенты можно отнести к минеральным образцам с поверхностно-активными свойствами, обязанными взаимодействию частиц сорбента с гидроксилитными группами (кремнеземистые, железооксидные с гидроксидирующей поверхностью).

В современной химии применения магнетитных сорбентов в настоящее время преобладают минерально-природных модификации сорбентов. При активации происходит перестройка кристаллической решетки природного сорбента, вследствие чего образуются большие пустоты. В результате взаимодействия сорбента с водородом минеральных кислот, обменивается с периферическими ионами глинистого вещества (K, Na, Ca, Mg) путем обменной адсорбции. Взаимодействие катионированных кристаллов с растворами кислот происходит в две стадии.

В первой стадии действие кислоты приводит к замещению щелочных катионов Me^+ . Однако из-за большой реакционной способности протон иона H_3O^+ взаимодействует с одной из четырех связей Al-O в алюмоокислородных тетраэдрах, разрывая ее с образованием гидроксильной группы.

Во второй стадии происходит процесс деалюминирования, который представляется как замещение Al^{3+} на $3H^+$ с образованием в деалюминированном каркасе нейтральных структурных групп из четырех гидроксидов -SiOH вместо полярных групп $[Al - OH] Me^+$.

При действии щелочи на глинистые минералы происходит процесс растворения с образованием силиката и алюмината натрия. В сильнощелочной среде, наряду с растворением глинистого минерала, идет новообразование кристаллического алюмосиликата, состав которого описывается формулой [4]:



В области модифицирования природных цеолитов, в частности морденита или клиноптилолита, известны способы модифицирования как вышперечисленными методами, с таким же характером протекающих процессов, так и методом их пропитки рядом полимерных органических соединений различной основности с последующей сшивкой этилхлоргидрином (ЭПГ) [1,2]. Однако такой метод модификации достаточно сложен и не позволяет получить высоких сорбционных характеристик по извлечению из

сточных вод наиболее долгоживущих и опасных изотопов цезия-137 и стронция-90, требования к ПДК, которых наиболее жесткие (Sr-90 = 45 Бк/л, Cs-137=96 Бк/л).

Сорбционная способность магнетитсодержащих композитов в значительной степени зависит от pH среды и наиболее эффективно протекает в слабокислой и нейтральной среде, хуже в кислой и щелочной, что ограничивает область их применения. Кроме того, магнетитные сорбенты наряду с ионообменными смолами не обладают радиационно-защитным эффектом, и после отработки становятся источниками радиоактивного излучения, что в значительной степени вызывает проблему их утилизации. В связи с этим представляется необходимой разработка сорбента селективного к изотопам Cs-137 и Sr-90 и не имеющего вышеперечисленных недостатков.

В этом направлении наиболее перспективны и технологичны модифицированные железорудные сорбенты, обеспечивающие эффективный радиационно-защитный экран для фотонного излучения, что в значительной степени позволяет снизить радиационный фон «отработанных» адсорбентов [5–6,8–9].

В качестве модификаторов использованы водорастворимые кремнийорганические олигомеры, в частности полиалюмоалкилсиликонаты натрия с различным содержанием алюминия, образующие с поверхностью подложки гидролитически стабильную систему связей. В качестве основного носителя (подложки) применяются железоксидные минеральные системы на основе высокодисперсного (10–35 мкм) природного магнетита и гематита.

Результаты исследования и их обсуждение

Закрепление модификатора на поверхности оксида происходит благодаря реакции алюмоалкилсиликоната натрия с гидроксильными группами поверхности оксида железа, его фиксации по елочному типу, а также за счет образования большого числа водородных связей между атомами кислорода оксида железа и ОН-группами полисилоксановой цепи модификатора [7]. При термообработке происходит конденсация образовавшихся при окислении олигомера силанольных групп, сопровождающаяся сшивкой полисилоксановых цепей между собой в единую модификационную сетку, в результате чего происходит закрепление модификатора на поверхности оксида с образованием потенциалопределяющих ионов натрия Na^+ .

Исследована сорбция радионуклидов Cs-137 и Sr-90 из водных сред в зависимости от pH среды, количества сорбента и времени сорбции. Контакт порошкообразных сорбентов из растворов осуществляли в статических и динамических условиях. После разделения суспензий фильтраты анализировали на удельную активность.

Установлено, что в результате модифицирования степень очистки водной среды от Cs-137 увеличилась от 15 % до 90 % на гематите и от 50 % до 95,5 % на магнетите. При определении зависимости сорбции радионуклидов от массы сорбента высокая и стабильная степень сорбции была получена при 5 %-ой концентрации суспензии. Высокие и хорошо воспроизводимые значения коэффициентов сорбции в среднем составили 85 %.

Полученные на основе железо оксидной матрицы сорбенты на подвержены набуханию и отличаются высокой скоростью установления сорбционного равновесия – до нескольких минут против нескольких часов в случае синтетических ионообменников.

Синтезированный сорбент позволяет проводить сорбционный процесс в любых средах в широком интервале pH и в соответствии с принятой классификацией может быть

отнесен к катионитам высокоосновного типа. Сравнительная характеристика основных марок катионных сорбентов, выпускаемых в зарубежных странах для нужд водоподготовки и синтезированного ионообменника, представлена в таблице 1.

Таблица 1. Сравнительная характеристика основных марок катионитов

Марка катионита	Показатель				
	Основа матрицы	Функциональная группа	Полная обменная емкость, г-экв/кг	Насыпная плотность, кг/м ³	Максимальная рабочая температура, °С
SMV-1	Фенолформальдегид	-SO ₃ H	3,7	500-650	90
SMV-2	полистирол	-SO ₃ H	3,2-4,8	600-900	120-130
US-1	полистирол	-PO(OH) ₂	4,9	800	90
Amberlit IR-120	полистирол	-SO ₃ H	5,0	600-800	120-130
Levatit SP-120	полистирол	-SO ₃ H	3,98	700-900	120-130
MS-23 Magnetitniy sorbent	магнетит (гематит)	-ONa	6,3-7,4	2100-2200	350-400

В таблице 2 показана зависимость обменной емкости от температурной обработки сорбента.

Таблица 2. Зависимость полной обменной емкости синтезированного железоксидного ионообменника от температуры его обработки

Температура обработки, °С	350	500	650	800
Полная обменная емкость, г-экв/кг	7	6,23	6,194	6,02

Из таблицы видно, что даже при нагревании сорбента до 800 °С емкость снижается всего на 14 %.

Заключение

В результате проведенных исследований показана возможность модифицирования железоксидных минеральных систем с целью придания им высоких сорбционных характеристик. Рассмотрены диффузионно-химические приемы формирования

модификатора на поверхности оксидов железа. Синтезированный сорбент позволяет проводить сорбционный процесс в любых средах в широком интервале pH и в соответствии с принятой классификацией может быть отнесен к катионитам высокоосновного типа.

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**Our opinion on some preventive measures for repeated surgery on the biliary tract
for cholelithiasis**

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Summary: Today, not “complicated” cholecystolithiasis (CCLT) mainly is treated by laparoscopic cholecystectomy (LCHEC) in up to 95-98.7% of cases, choledocholithiasis (CDL) and stenosis of the papilla of Vater (SPV), mainly by endoscopic papillasphincterotomy (EPST), laparoscopic choledocholithotomy (LCDLT) up to 75 - 85%, and sometimes also by laparoscopic choledochoduodenoanastomosis (LCDA), etc. If these operations cannot be performed or they were inadequate, then surgeons are forced to use the open of variants of these operations.

But the results of some of them (especially LHEC, LCDLT and CDA) are not yet fully positive (comforting), due to the development of recurrent or residual CDL and SPV, even supposedly performed for not “complicated” CCLT. Not to mention such a high percentage of the so-called controversial concept of “postcholecystectomy syndrome” (PCHES), which occurs in up to 40% or more of cases. Which force patients to continue treatment after surgery, even they are sometimes subjected to re-operation for recurrent or residual CDLT and SPV up to 10 - 15%. This means that in the treatment of this pathology there are still a number of problems leading to PCHES.

The work studied and analyzed the results of more than 14,000 LHEK and 84 OHEK, regarding not “complicated” CCLT, 57 - OCDLT, 61 - OHDA, 74-OPSP and 37 open double internal drainage (ODID), i.e. PST+CDA for HDLT and SPV.

At the same time, it was noted that PCHES is often observed after CDLT and CDA, including after CHEC (especially after LCEC) performed allegedly for not “complicated” CCTL.

At the same time, after adequate OPSP and double internal drainage of bile ducts, despite their use in more advanced - complicated forms of cholelithiasis, as well as after unsuccessful results or inadequate EPST or OCLT, CDA, reports on the frequency of recurrent or residual CDL and SPV in periodicals much less frequently, and their results are much better than even after LCHEC performed for not “complicated” CCLT. The results were even worse after CDLT with bougienage of SPV and CDA.

This means that the basis for repeated operations on the biliary tract for CLT is often inadequately eliminated bile stasis (either undiagnosed or most likely inadequately corrected). Namely, bile stasis can serve not only as a reason for repeated operations, but also in general, often as the initial cause of CLT in general. This is evidenced by the indicated mechanism of formation of gallstones, their migration and their consequences.

Keywords: Cholelithiasis (GI), laparoscopic cholecystectomy (LCHEC), endoscopic papillosphincterotomy (EPST), choledocholithotomy (CLT), choledochodenoanastomosis (CDA), papillosphincterotomy (PST), laparoscopic choledocholithotomy (LCDLT), transduodenal papillosphincteroplasty (TDPSP), benign stenosis of the Vater nipple (DSFS), terminal part of the choledochus (TCH), Nipple vater (FS), obstruction of the terminal part (OTP), common bile duct (CBD, Vater’s papilla stenosis (VPS).

Relevance of the work. Today, throughout the world, “uncomplicated” (UC) cholelithiasis (CLT) - cholecystolithiasis (CCLT) is treated by laparoscopic cholecystectomy (LCHEC) in up to

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95-98.7% of cases (4, 10, 14 and etc.), when there is an obstruction of the terminal part (OTP) of the common bile duct (CBD) and Vater's papilla (VP) due to choledocholithiasis (CDL) and Vater's papilla stenosis (VPS), (basically) also mainly treated, By endoscopic papillosphincterotomy (EPST), laparoscopic choledocholithotomy (LCDLT) up to 75 - 87%, and recently, for the same indication, a number of surgeons have begun to widely use laparoscopic choledochoduodenostomosis (LCDA), etc. 15, 18, 19, 20 and etc.).

If the above mentioned operations (endoscopic, laparoscopic, etc.) can't be performed or they were inadequate, then surgeons are forced to use opening methods of these operations, such as opening (O) variants of CHEC (OCHEC), choledocholithotomy (OCDLT), choledochoduodenostomosis (OCDA), papillosphincterotomy (OPST), papillosphincteroplasty (OPSP), etc.

But, the long-term results of some of them (especially LCHEC, LCDLT, EPST and CDA) are not always and not everywhere positive yet [1,2,7,21,22] due to the development of recurrent or residual CDL, VPS, even allegedly (definitely) carried out (it should be especially emphasized) for UC CCLT. Without even mentioning such a high percentage of the so-called controversial concept as "postcholecystectomy syndrome" (PCHECS), occurring in up to 51.3% or more cases, which take place more often in the republics of the former Soviet Union [1,3,10,13,16,18]. Which force patients to continue treatment after surgery, even sometimes they undergo re-operation, mainly for recurrent (repeated) or remaining (residual) CDL and SPV up to 10 - 15% [2,4,11,22,23,24]. This means that there are still some problems in the diagnosis and treatment of this pathology . especially in these - in the above-mentioned regions. As a result, the population's low level of medical knowledge.

Purpose of the study. To improve the quality of treatment of patients operated on for CLT. by identifying some of the reasons for unsatisfactory results of surgical treatment requiring repeated operations. Especially in developing countries.

Research objectives. To find out some of the reasons for the unsatisfactory results of existing methods of surgical treatment of CLT, requiring repeated operations.

Materials and research methods. Since 1995, we have performed more than 14,000 LCHEC and 84 OCHEC, for UC CCLT, 57 - OCDLT and 26 LCDLT, 61 - OCDA, 74 - OPSP and 37 open double internal drainage (ODID) of the biliary tract (BT), i.e. , made by OPST or OPSP+OCDA for (regarding) CDL and SPV.

After them, 1688 patients returned again due to their condition not improving after surgery. Of these, 1603 patients were after CHEC, 46 after CDLT, 39 after CDA. More than half of whom (858 patients) required a comprehensive examination (Clinical and laboratory examination, ultrasound, gastroduodenoscopy, contrast X-ray examination of the gastrointestinal tract, RPCG, MRI cholangiography, etc.) for PCHECS.

At the same time, in 162 patients after CHEC, CDL and SPV were detected, and they were re-operated and underwent EPST (128 cases) with sanitation (with removal of stones) of the bile ducts. In 34 patients who failed to adequately perform EPST (with repeated attempts to remove, more often than not, large multiple, fissured - strangulated stones from the bile ducts), opening surgery was performed (OPST or OPSP and CDA), especially in more advanced - severity cases (with 3 degrees of pathology) disease (see Table 1), which occurs more often in our regions. Due to the late presentation appeal - receipt of patients for CCLT. The remaining patients continue conservative treatment for chronic pancreatitis, cholangitis, hepatitis, gastroduodenitis, etc.

Slide 14 (Table 1).

The main signs of an OTP of the CBD and VP due to CDL and VPS in cholangiography (ERCP, MRCP, intraoperative cholangiogram etc.), cholangioscopy, choledochoscopy, balloon cholangio-papillography and probing.

Investigations	Degrees of the OTP CBD and the VP		
	I	II	III
Intraoperative/on table cholangiogram, choledochoscopy, balloon cholangiopapillography			
Narrowing of the TP of CBD and the VP(in mm)	> 2-1	>1	< 1
Flow of the radiocontrast agent through the VP	Mildly decreased	Moderate to severely decreased	Severely decreased or no flow
Dilatation of the CBD(in mm)	< 15	15-19	>20
Probe	4 mm probe is not passing but 3 mm probe is passing with some effort.	3 mm probe is not passing	-
Choledochoscopy	Luminal narrowing of the TP CBD and the VP due to inflammatory-fibrotic deformity, polyps, lack of "motor play" of the terminal CBD and the sphincter of the VP. Choledochoscope does not pass through the VP.		

The discussion of the results. As is known, CHEC (They are regardless of whether these operations are performed independently by LCHEC or OCHEC) is indicated only for UC CCLT, i.e. without obvious (noticeable, clear) signs of CDL and SPV (i.e., in the absence of signs of obstructive jaundice, visible (noticeable) dilated of the diameter of the hepaticocholedochus, stones in it, etc.). CDLT and EPST for CDL with - or without SPV, and CDA or DVD of BT in advanced (with 2 and especially 3 degrees) cases of pathology (see table). CDL and SPV.

Thanks to these operations, CLT (CCLT, CDL, SPV, etc.) is supposedly completely (evidently) eliminated. If so, then what is such a common reason for the development of CDL and SPV, including after LCHEC performed for UC CCLT, not to mention other unknown causes of PCHECS...!?

At the same time, after adequate OPSP and DVD of BT, despite their use in more advanced - complicated forms of CLT, as well as after unsuccessful performing or inadequate EPST or OCDDT, OCDA, reports on the frequency of recurrent or residual CDL and VPS in periodicals much less often (and, in our practice, were not observed at all). Moreover, their results turned out to be much better than even after LCHEC performed for UC CCLT. The results were even worse after CDLT with bougienage of VPS and CDA.

All this suggests suggests that during LCHEC, CDLT and CDA carried out for UN CCLT, CDL and SPV, do not undiagnosed CDLT and SPV remain (after LHEC, CDLT and CDA) and inadequate correction of the pathology as a result of EPST, CDLT and CDA .

It should be emphasized that today the diagnosis of CCLT and CDL, and their treatment by LCHEC, LCDLT and EPST are generally accepted, without any serious disagreement (1, 7, 9, 14 and etc). Therefore, more often than not, the true residual nature of CDL after LCHEC, it seems to us that CDL should not be so great (at least, it is unlikely), and as for SPV, supposedly its main cause is considered to be CCLT CDL, it also seems to be radically eliminated by LCHECS. If so, then where do recurrent or residual CDL and VPS come from...!?

If during CLT (CCTL and CDL) diagnostic errors do not occur in 2-3%, and in the diagnosis of VPS there are almost no such clearly established, similar, almost identical data, i.e. So, the frequency of VPS during CLT ranges from 1-5% to 30 – 45% and even much more.

As is known, most authors believe that VPS as a complication of CLT is CCLT and CDL. They are eliminated by LCHEC, CDLT and EPST...! And after PSP and DVD of BT there is practically no relapse and there is no residual CDL and VPS.

Therefore, it seems to us that the main problem in this pathology, all such often lies not adequately eliminated bile stasis, but precisely at the level of VP, leading to repeated bile stasis. not only served as the cause of relapse of the pathology, and even at the beginning of CLT. Although many believe that the main causes of CLT are, first of all, dyscholia, inflammation, and then stagnation of bile (3, 5,6,8, 9,17 ,12, 23, 24 and etc). There is no doubt about it.

But, with dyscholia and inflammation, the sudden appearance of significantly large stones (more than 1.5 - 2 - 3 mm), often delayed and growing in size and increasing in number in the gallbladder and especially in the bile ducts, is difficult to imagine, given the data below.

Since, naturally, gallstones initially appear in the form of “microlites” - in the form of “biliary sludge” or stones of small size (up to 1 – 1.5 – 2 mm) and they should migrate freely along the bile flow from the gallbladder to common bile duct, further and especially through the VP into the duodenum, if there are no obstacles in the VP area leading to bile stasis (in the bile ducts).

Since, with an intact biliary system, the diameter of the narrowest parts of the bile ducts, which are the cystic duct and VP, is always larger than these microliths - small stones, which on average are 2 - 4 mm and 3 - 6 mm, respectively. For example, with intact bile ducts (on a corpse), 3-4 mm probes are often difficult to pass through the cystic duct into the common bile duct, but they pass through the VP almost without any difficulty. And when identifying stones in the bile ducts, it's the other way around.

It should be noted here that if there are stones in the gallbladder smaller than the diameter of the cystic duct, such stones are almost always found in the hepaticocholedochus (especially, during transillumination), very often especially in the ampulla of the VP during choledochoscopy.

Stones migrated from the gallbladder through a narrow (2-4 mm in diameter) and relatively long (15 – 30 – 60 -... mm) duct (often tortuous) should pass freely - migrate through a relatively wide (3- 6 mm in diameter) - and a short (from 4 – 25 mm) channel of the VP, moreover, the bile outflow from the VP into the duodenum is much faster than through the cystic duct. Moreover, after LCHEC, i.e. after elimination (as it is considered), the main thing is the main formation of stones, including their removal from the bile ducts, by LCDLT and EPST, we can say that CLT is almost completely eliminated. Then what is the cause of recurrent or residual CDL and VPS...!?

According to the leading Ukrainian hepatologist Professor N.B. Gubergritsa, after CHEC

(supposedly done for “uncomplicated” calculous cholecystitis), at least 55% of patients are not completely cured of the disease, and in her monograph published in 2007 (“Chronic abdominal-biliary pain” M., 2007. 420 p.), PCHES was noted in up to 87% of cases).

Based on this, it can be assumed that at the beginning of the pathology (as a trigger for the disease (cholelithiasis), it seems to us that it often lies in the VP, leading to bile stasis in the bile ducts, primarily in the gallbladder, taking into account its large volume - as a keeper - of the reservoir bile.

During inadequate activation of digestion, i.e. disorderly eating (in a flash, at the wrong time, without desire - without appetite, stressful situations, physical inactivity, etc.) and as a result of insufficient work of the sphincter apparatus of the VP (dysfunction, spasms, papillitis, etc.) it seems to us that bile is mostly emptied from the extravascular bile ducts, while not having time to completely empty the gallbladder. This leads to thickening of the bile and the formation of microliths - and then stones with their retention, of course, at the beginning of the gallbladder. The constant migration of stones through the cystic duct, especially through an altered VP, aggravates the change in VP (this is a universally recognized mechanism for the development of this pathology...!) with their subsequent accumulation in the common bile duct...!

This means that timely removal of the gallbladder seems to break this vicious circle in most cases, significantly preventing and stopping the further development of the pathology - continued stone formation and its complications, but it turns out that this is not always the case - and not always effective (see top...!) .

As is known, diagnoses of CDL and especially VPS are often based on the degree of dilatation (expansion) of the diameter of the hepaticocholedochus and the presence of jaundice (at admission or in history, more often during an attack of biliary colic). As for jaundice, it can be absent in CDL and VPS up to 50% (3,7, 9 and etc) It seems to us that the degree of dilatation (expansion) of the hepaticocholedochus also requires some clarification.

As is known, with intact bile ducts, the diameter of the hepaticocholedochus does not exceed 4–8 mm, and during LCHEC, the diameter of the hepaticocholedochus in almost more than half of the cases is 8–10 mm, and often up to 11–12 mm. Surgery usually completes the LCHEC operation in such cases, If a stone is not clearly identified in the hepaticocholedochus and PS.

If for a given patient the initial diameter of the hepaticocholedochus was 4-6 mm, then during LCHEC the diameter of the hepaticocholedochus was detected to be 8 - 12 mm, which occurs in more than half of the cases, then it turns out to be dilated almost 2 - 3 times. As for choledocholithiasis (which is also considered one of the main signs of VPS), it is often detected even with a non-dilated common bile duct in up to 10 - 15% of cases.

This means that not the absence of jaundice, the dilated (expansion) of the hepaticocholedochus (8 – 10 – 12 mm considered normal in many publications) and stones in the common bile duct does not exclude the diagnosis of VPS. What is evidenced by the presence of a fairly high percentage of recurrent or residual CDL and VPS...!?, even after LCHEC performed for UC CCLT.

This means that primary operations on the biliary tract are performed on time (especially during LCHEC, CDLT and CDA) or are not diagnosed (given the residual - recurrent nature of the pathology) or are not adequately corrected during the procedure. This means it is necessary to develop more advanced diagnostic methods and treatment of CLT complicated by CDL and especially SPV.

Summary: Today, not “complicated” cholecystolithiasis (CCLT) mainly is treated by laparoscopic cholecystectomy (LCHC) in up to 95-98.7% of cases, choledocholithiasis (CDL) and stenosis of the papilla of Vater (SPV), mainly by endoscopic papillasphincterotomy (EPST), laparoscopic choledocholithotomy (LCDLT) up to 75 - 85%, and sometimes also by laparoscopic choledochoduodenostomy (LCDA), etc. If these operations cannot be performed or they were inadequate, then surgeons are forced to use the open variants of these operations.

But the results of some of them (especially LCHC, LCDLT and LCDA) are not yet fully positive (comforting), due to the development of recurrent or residual CDL and SPV, even supposedly performed for not “complicated” CCLT. Not to mention such a high percentage of the so-called controversial concept of “postcholecystectomy syndrome” (PCHES), which occurs in up to 40% or more of cases. Which force patients to continue treatment after surgery, even they are sometimes subjected to re-operation for recurrent or residual CDLT and SPV up to 10 - 15%. This means that in the treatment of this pathology there are still a number of problems leading to PCHES.

The work studied and analyzed the results of more than 14,000 LCHC and 84 OCHC, regarding not “complicated” CCLT, 57 - OCLT, 61 - OHDA, 74-OPSP and 37 open double internal drainage (ODID), i.e. PST+LCDA for HDLT and SPV.

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This means that the basis for repeated operations on the biliary tract for CLT is often inadequately eliminated bile stasis (either undiagnosed or most likely inadequately corrected). Namely, bile stasis can serve not only as a reason for repeated operations, but also in general, often as the initial cause of CLT in general. This is evidenced by the indicated mechanism of formation of gallstones, their migration and their consequences.

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Main long-term negative results (surgical complications) after biliary tract surgery for cholelithiasis

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Summary: Today, not “complicated” cholecystolithiasis (CCLT) is treated by laparoscopic cholecystectomy (LCHEC) in up to 95-98.7% of cases, choledocholithiasis (CDL) and stenosis of the papilla of Vater (SPV), mainly by endoscopic papillasphincterotomy (EPST), laparoscopic choledocholithotomy (LCDLT) up to 75 - 85%, and sometimes also by laparoscopic choledochoduodenostomy (LCDA), etc. If these operations cannot be performed or they were inadequate, then surgeons are forced to use the open variants of these operations.

Keywords: Cholelithiasis (GI), laparoscopic cholecystectomy (LCHEC), endoscopic papillosphincterotomy (EPST), choledocholithotomy (CLT), choledochodenoanastomosis (CDA), papillosphincterotomy (PST), laparoscopic choledocholithotomy (LCDLT), transduodenal papillosphincteroplasty (TDPSP), benign stenosis of the Vater nipple (DSFS), terminal part of the choledochus (TCH), Nipple Vater (FS), obstruction of the terminal part (OTP), common bile duct (CBD, Vater’s papilla stenosis (VPS).

Relevance of the work. Everywhere today the main forms of biliary tract disease, such as cholelithiasis (CLT) - calculus cholecystitis (CCLT), obstruction of patency (OP) of the terminal part (TP) of the common bile duct (CBD) and Vater's papilla (VP), due to choledocholithiasis (CDL) and stenosis of the papilla of Vater (SPV) are successfully diagnosed (by clinical laboratory examination, ultrasound, CT, MRI, cholangiography, RPCG, etc.) and is treated mainly by laparoscopic cholecystectomy (LCHEC) in up to 95-98.7% of cases ((1, 8, 9), choledocholithiasis (CDL) and SPV, mainly, by (through) endoscopic or interoperative papillosphincterotomy (EPST or IOPST), laparoscopic choledocholithotomy (LCDLT) up to 75 - 87% and recently, for the same indication, a number of surgeons (have begun to widely use laparoscopic choledochoduodenostomy (LCDA), etc. Recently, a number of surgeons have begun to widely use laparoscopic choledochoduodenostomy (LCDA) for the same indication [2,3,7,16,21]

If the above mentioned operations (endoscopic, laparoscopic, etc.) can’t be performed or they were inadequate, then surgeons are forced to use opening methods of these operations, such as opening (O) variants of CHEC (OCHEC), choledocholithotomy (OCDLT), choledochoduodenostomy (OCDA), papillosphincterotomy (OPST), papillosphincteroplasty (OPSP), etc.

But the long-term results of some of them (especially CHEC, CDLT, EPST and CDA, regardless of whether they were performed open or laparoscopically) are not yet fully positive [4,5,12,14,16] (encouraging)-- are not always positive yet (not yet fully comforting), due to the development of recurrent or residual CDL, SPV, even allegedly carried out (it should be especially emphasized) for UC CCLT. Without even mentioning such a high percentage of the so-called controversial concept as “postcholecystectomy syndrome” (PCHECS), occurring in up to 51.3% or more cases [11,15,20,22]. Which force patients to continue treatment after surgery, even sometimes they undergo re-operation, mainly for recurrent (repeated) or remaining (residual) CDL

and SPV up to 10 - 15% [20,22]. This means that there are still some problems in the diagnosis and treatment of this pathology.

Purpose of the study. To improve the quality of treatment of patients operated on for CLT. by identifying some of the reasons for unsatisfactory results of surgical treatment requiring repeated operations.

Research objectives. To find out some of the reasons for the unsatisfactory results of existing methods of surgical treatment of CLT, requiring repeated operations.

Materials and research methods. We and our staff have performed more than 14,000 LHEK (after 1994) and 5,084 OHEK (mostly before 1995), regarding NO HTsLT, 97 - OCDLT and 36 LHDLT, 461 - OHDA, 38 OPST, 974-OPSP and 337 open double internal drainage (ODID) of the biliary tract (GBT), i.e., OPSP + OHDA were performed for CDL and SPS (see Table 1).

After them, 1688 patients returned again due to their condition not improving after surgery. Of these, 1603 patients were after CHEC, 46 after CDLT, 39 after CDA. More than half of whom (858 patients) required a comprehensive examination (Clinical and laboratory examination, ultrasound, gastroduodenoscopy, contrast X-ray examination of the gastrointestinal tract, RPCG, MRI cholangiography, etc.) for PCHECS.

At the same time, in 162 patients after CHEC, CDL and SPV were detected, and they were re-operated and underwent EPST (128 cases) with sanitation (removal of stones) of the bile ducts. In 34 patients who failed to adequately perform EPST (with repeated attempts to remove, more often than not, large multiple, fissured - strangulated stones from the bile ducts), opening surgery was performed (OPST or OPSP and CDA), especially in more advanced - severity cases (with 3 degrees of pathology) disease (see Table 1), which occurs more often in our regions. Due to the late presentation appeal - receipt of patients for CCLT. The remaining patients continue conservative treatment for chronic pancreatitis, cholangitis, hepatitis, gastroduodenitis, etc.

Table 1
Basic methods of treatment of CLT

	During 1972-1994 y.	After 1994y
OCHEC	5 084	102
LCHEC -	-	14,098
OCHDLT	97	8
LCHDLT	=	36
OHDA	430	46
OPST	38	-
OPSP	946	28
DVD	228	119
Total	6 3 2 3	14 4 3 7

After them, 2088 patients returned again due to their condition not improving after surgery. Of these, 1822 patients were after CHEC (из них 522 после и 1300 после...), 66 after CDLT, 239 after CDA. More than half of whom (1358 patients) required a comprehensive examination (Clinical and laboratory examination, ultrasound, gastroduodenoscopy, contrast X-ray examination of the gastrointestinal tract, RPCG, MRI cholangiography, etc.) for PCHECS.

At the same time, in 664 patients after CHEC, 76 больных после ХДА и 72 после

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CDLT were detected, CDL and SPV and they were re-operated and underwent EPST (418 cases) with sanitation (removal of stones) of the bile ducts. In 96 patients who failed to adequately perform EPST (with repeated attempts to remove, more often than not, large multiple, fissured - strangulated stones from the bile ducts), opening surgery was performed (OPST or OPSP and CDA), especially in more advanced - severity cases (with 3 degrees of pathology) disease (see Table 1), which occurs more often in our regions. Due to the late presentation appeal - receipt of patients for CCLT. The remaining patients continue conservative treatment including for chronic pancreatitis, cholangitis, hepatitis, gastroduodenitis, etc. obstruction of patency (OP) of the terminal part of the common bile duct (TCH) and Vater's papilla (PS) due to choledocholithiasis (CHL) and Vater's stenosis

Table 2.

The main signs of OP TP CBD and VP due to CDL and VPS in cholangiography (ERCP, MRCP, intraoperative cholangiogram etc.), cholangioscopy, choledochoscopy, balloon cholangiopapillography and probing.

Investigations	Degrees of the OTP CBD and the VP		
	I	II	III
Intraoperative/on table cholangiogram, choledochoscopy, balloon cholangiopapillography			
Narrowing of the TP CBD and the VP(in mm)	> 2-1	>1	< 1
Flow of the radiocontrast agent through the VP	Mildly decreased	Mod erate to severely decreased	Sev erely decreased or no flow
Dilatation of the CBD (in mm)	< 15	15-19	>20
Probe	4 mm probe is not passing but 3 mm probe is passing with some effort.	3 mm probe is not passing	-
Choledochoscopy	Luminal narrowing of the TP CBD and the VP due to inflammatory-fibrotic deformity, polyps, lack of "motor play" of the terminal CBD and the sphincter of the VP. Choledochoscope does not pass through the VP.		

The discussion of the results. As is known, CHEC (LCHEC or OCHEC) is indicated

only for UC CCLT, i.e. without obvious (noticeable, clear) signs of CDL and SPV (i.e., in the absence of signs of obstructive jaundice, visible (noticeable) dilatation of the diameter of CBD, stones in it, etc.). CDLT and EPST for CDL with - or without SPV, and CDA or DVD of BT in advanced (with 2 and especially 3 degrees) cases (see table 1) of pathology CDL and SPV(6, 10,11, 17, 19 и др.

Thanks to these operations, CLT (CCLT, CDL, SPV, etc.) is supposedly (evidently) completely eliminated. If so, then what is such a common reason for the development of CDL and SPV, including after LCHEC performed for UC CCLT, not to mention other unknown causes of PCHECS...!?

At the same time, after adequate OPSP and DVD of BT, despite their use in more advanced - complicated forms of CLT, as well as after unsuccessful performing or inadequate EPST or OCDT, OCDA, reports on the frequency of recurrent or residual CDL and SPV in periodicals much less often (and, in our practice, were not observed at all). Moreover, their long-term results turned out to be much better than even after LCHEC performed for UC CCLT. The results were even worse after CDLT with bougienage of SPV and CDA.

All this suggests that during LCHEC (for UC CCLT) , CDLT and CDA performed (carried out), for CDL and SPV, do not there remain undiagnosed CDLT and SPV remain (after LHEC, CDLT and CDA) and inadequate correction of the pathology as a result of EPST, CDLT and CDA....!?

It should be emphasized that today the diagnosis of CCLT and CDL, and (also) their treatment by LCHEC, LCDLT and EPST are generally accepted, without any serious disagreement. Therefore, more often than not, the true residual nature of CDL after LCHEC, it seems to us that CDL should not be so great (at least, it is unlikely), and as for SPV, supposedly its main cause is considered to be CCLT CDL, it also seems to be radically eliminated by LCHECS. If so, then where do recurrent or residual CDL and SPV come from...!?

If during CLT (CCLT and CDL) diagnostic errors do not occur in 2-3%, and in the diagnosis of SPV there are almost no such clear established data, i.e., the frequency of SPV during CLT ranges from 1-5% to 30 – 45% or more.

As is known, most authors believe that SPV as a complication of CLT - CCLT and CDL. They are eliminated by LCHEC (CCLT), and CDL by CDLT and EPST...! And after PSP and DVD of BT there is practically no relapse and there is no residual CDL and SPV.

Therefore, it seems to us that the main problem in this pathology, all such often lies not adequately eliminated bile stasis, but precisely at the level of VP, leading to repeated bile stasis. not only served as the cause of relapse of the pathology, and even at the beginning of CLT. Although many believe that the main causes of CLT are, first of all, dyscholia, inflammation, and then stagnation of bile. There is no doubt about it.

But, with dyscholia and inflammation, the sudden appearance of significantly large stones (more than 1.5 - 2 - 3 mm), often delayed and growing in size and increasing in number in the gallbladder and especially in the bile ducts, is difficult to imagine, given the data below.

Since, naturally, gallstones initially appear in the form of “microlites” - in the form of “biliary sludge” or stones of small size (up to 1 – 1.5 – 2 mm) and they should migrate freely along the bile flow from the gallbladder to common bile duct, further and especially through the VP into the duodenum, if there are no obstacles in the VP area leading to bile stasis (in the bile ducts).

Since, with an intact biliary system, the diameter of the narrowest parts of the bile ducts, which are the cystic duct and VP, is always larger than these microliths - small stones, which on average are 2 - 4 mm and 3 - 6 mm, respectively. For example, with intact bile ducts (on a corpse), 3-4 mm probes are often difficult to pass through the cystic duct into the common bile duct, but they pass through the VP almost without any difficulty. And when identifying stones in the bile ducts, it's the other way around.

It should be noted here that if there are stones in the gallbladder smaller than the diameter of the cystic duct, such stones are almost always found in the hepaticocholedochus (especially, during transillumination), very often especially in the ampulla of the VP during choledochoscopy.

Stones migrated from the gallbladder through a narrow (2-4 mm in diameter) and relatively long (15 - 30 - 60 -... mm) duct (often tortuous) should pass freely - migrate through a relatively wide (3- 6 mm in diameter) - and a short (from 4 - 25 mm) channel of the VP, moreover, the bile outflow from the VP into the duodenum is much faster than through the cystic duct. Moreover, after LCHEC, i.e. after elimination (as it is considered), the main thing is the main formation of stones, including their removal from the bile ducts, by LCDLT and EPST, we can say that CLT is almost completely eliminated. Then what is the cause of recurrent or residual CDL and SPV...!?

According to the leading Ukrainian hepatologist Professor N.B. Gubergritsa, after CHEC (supposedly done for "uncomplicated" calculous cholecystitis), at least 55% of patients are not completely cured of the disease, and in her monograph published in 2007 ("Chronic abdominal-biliary pain" M., 2007. 420 p.), PCHES was noted in up to 87% of cases).

Based on this, it can be assumed that at the beginning of the pathology (as a trigger for the disease (cholelithiasis), it seems to us that it often lies in the VP, leading to bile stasis in the bile ducts, primarily in the gallbladder, taking into account its large volume - as a keeper - of the reservoir bile.

During inadequate activation of digestion, i.e. disorderly eating (in a flash, at the wrong time, without desire - without appetite, stressful situations, physical inactivity, etc.) and as a result of insufficient work of the sphincter apparatus of the VP (dysfunction, spasms, papillitis, etc.) it seems to us that bile is mostly emptied from the extravascular bile ducts, while not having time to completely empty the gallbladder. This leads to thickening of the bile and the formation of microliths - and then stones with their retention, of course, at the beginning of the gallbladder. The constant migration of stones through the cystic duct, especially through an altered VP, aggravates the change in VP (this is a universally recognized mechanism for the development of this pathology...!) with their subsequent accumulation in the common bile duct...!

This means that timely removal of the gallbladder seems to break this vicious circle in most cases, significantly preventing and stopping the further development of the pathology - continued stone formation and its complications, but it turns out that this is not always the case - and not always effective (see top...!) .

As is known, diagnoses of CDL and especially SPV are often based on the degree of expansion of the diameter of the hepaticocholedochus and the presence of jaundice (at admission or in history, more often during an attack of biliary colic). As for jaundice, it can be absent in CDL and SPV up to 50% (.). It seems to us that the degree of expansion of the hepaticocholedochus also requires some clarification.

As is known, with intact bile ducts, the diameter of the hepaticocholedochus does not exceed 4–8 mm, and during LCHEC, the diameter of the hepaticocholedochus in almost more than half of the cases is 8–10 mm, and often up to 11–12 mm. Surgery usually completes the LCHEC operation in such cases, If a stone is not clearly identified in the hepaticocholedochus and SPS.

If for a given patient the initial diameter of the hepaticocholedochus was 4-6 mm, then during LCHEC the diameter of the hepaticocholedochus was detected to be 8 - 12 mm, which occurs in more than half of the cases, then it turns out to be dilated almost 2 - 3 times. As for choledocholithiasis (which is also considered one of the main signs of SPV), it is often detected even with a non-dilated common bile duct in up to 10 - 15% of cases.

This means that not the absence of jaundice, the expansion of the hepaticocholedochus (8 – 10 – 12 mm considered normal in many publications) and stones in the common bile duct does not exclude the diagnosis of SPV. What is evidenced by the presence of a fairly high percentage of recurrent or residual CDL and SPV...!?, even after LCHEC performed for uncomplicated CCLT.

This means that primary operations on the biliary tract are performed on time (especially during LCHEC, CDLT and CDA) or are not diagnosed (given the residual - recurrent nature of the pathology) or are not adequately corrected during the procedure. This means it is necessary to develop more advanced diagnostic methods and treatment of CLT complicated by CDL and especially SPV.

Summary: Today, not “complicated” cholecystolithiasis (CCLT) is treated by laparoscopic cholecystectomy (LCHEC) in up to 95-98.7% of cases, choledocholithiasis (CDL) and stenosis of the papilla of Vater (SPV), mainly by endoscopic papillasphincterotomy (EPST), laparoscopic choledocholithotomy (LCDLT) up to 75 - 85%, and sometimes also by laparoscopic choledochoduodenoanastomosis (LCDA), etc. If these operations cannot be performed or they were inadequate, then surgeons are forced to use the open of variants of these operations.

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