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ANIQ VA TABIIY FANLARNI RIVOJLANTIRISHDA RAQAMLI TEXNOLOGIYALARNING O'RNI: MUAMMO VA INNOVATSION YECHIMLAR

mavzusidagi xalqaro ilmiy-texnik anjuman materiallari

РОЛЬ ЦИФРОВЫХ ТЕХНОЛОГИЙ В РАЗВИТИИ ТОЧНЫХ И ЕСТЕСТВЕННЫХ НАУК:
ПРОБЛЕМЫ И ИННОВАЦИОННЫЕ РЕШЕНИЯ

THE ROLE OF DIGITAL TECHNOLOGIES IN THE DEVELOPMENT OF EXACT AND
NATURAL SCIENCES: PROBLEMS AND INNOVATIVE SOLUTIONS



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**O‘ZBEKISTON RESPUBLIKASI OLIY TA’LIM, FAN VA
INNOVATSIYALAR VAZIRLIGI**

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RAQAMLI TEXNOLOGIYALAR VAZIRLIGI**

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KIRISH SO‘ZI

Hurmatli hamkasblar muhtaram olim va tadqiqotchilar, magistrantlar va iqtidorli talabalar!

Sizni universitet va shaxsan o‘z nomimdan aniq va tabiiy fanlarni rivojlantirishda raqamli texnologiyalardan foydalanishning ilmiy asoslariga bag‘ishlangan ushbu muhim Xalqaro konferensiyada ko‘rib turganimdan mamnunman.

Bizning universitetimiz har doim intellektual va ilmiy rivojlanish markazida bo‘lishga intiladi va bugungi tadbir ham bundan mustasno emas. Biz raqamli texnologiyalar sohasidagi eng dolzarb tadqiqotlar va texnologik innovatsiyalarni muhokama qilish uchun ushbu anjumanga mezbon ekanligimiz bilan faxrlanamiz. Ishonamizki, bunday konferensiyalar olimlarning yangi avlodlarini shakllantirishda, ilmiy fikrlashni rivojlantirishda va innovatsion faoliyatni rag‘batlantirishda muhim rol o‘ynaydi.

Bugungi kunda jamiyatning har bir jabhasi tobora raqamlashib borayotgan davrda ilg‘or texnologiyalarni tushunish va ulardan samarali foydalanish kelajagimizni shakllantirishda muhim ahamiyatga ega. Biz jamiyatimizni o‘zgartirishga, aqlli va samarali qilishga yordam beradigan yangi kashfiyotlar va imkoniyatlar ostonasida turibmiz.

Ushbu konferentsiyaning barcha ishtirokchilariga ilm-fan va texnologiyalarga qo‘shgan hissalarini beqiyos ekanligini ta’kidlab o‘tgan holda Sizning tadqiqotlaringiz va ishlanmalaringiz aniq va tabiiy fanlarni rivojlantirishda raqamli texnologiyalarning kelajagi uchun mustahkam poydevor bo‘lib xizmat qiladi. Bugungi konferentsiya nafaqat yangi tadqiqot natijalarini taqdim etish uchun platforma, balki ilhom, o‘rganish va birgalikda o‘sish uchun forumga aylanishini umid qilamiz. Biz raqamli texnologiyalarning eng dolzarb masalalari va muammolarini muhokama qilish maqsadida yig‘ildik va ishonchimiz komilki, bizning munozaralarimiz yangi g‘oyalar va yechimlarga olib keladi.

Shuningdek, ilm-fan rivojlangan davlatlardan, xususan Qirg'iziston, Qozog'iston Respublikasi, Rossiya Federatsiyasi, Malayziya va Vengirya xalq Respublikasi olimlaridan kelgan mehmonlar ishtirok etgani biz uchun alohida quvonchlidir. Har yili universitetlar o'rtasidagi hamkorligimiz yanada mustahkamlanib va kengayib bormoqda va bizning birgalikdagi sa'y-harakatlarimiz ilmiy hamjamiyatimiz hamda umuman jamiyatimizga katta foyda keltirishda davom etishiga ishonchimiz komil.

Barchamizga konferentsiya davomida samarali munozaralar va muhim natijalarga erishish borasida hamkorlik yo'lga qo'yilishini tilayman. Bizning umumiy maqsadimiz raqamli innovatsiyalar orqali dunyoni yanada yaxshiroq makonga aylantirishga xizmat qilsin.

E'tiboringiz uchun tashakkur, ushbu ajoyib tadbirdan zavqlaning!

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IV SHO‘BA. EKOLOGIK HAMDA ENERGETIK MUAMMOLARNI YECHISHDA ANIQ VA TABIIY FANLARNING O‘RNI



ALGORITHMS FOR OPTIMISATION OF OPERATION MODES OF ELECTRIC POWER SYSTEMS TAKING INTO ACCOUNT THE PROBABILISTIC NATURE OF INITIAL DATA

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Abstract: *This paper investigates methods for optimising the operation modes of electric power systems taking into account probabilistic features of the initial data. The developed models of electric power distribution over power system nodes represent universal solutions for ensuring efficient processes of energy conversion, transmission and utilisation in various segments of the system. These models make it possible to correctly describe power distribution and serve as a basis for optimisation of key technological parameters of the power system. The use of such models allows minimising active power losses of electric power, which contributes to the overall efficiency of the system.*

Keywords: *Optimisation algorithm, electric power system, minimum criterion, power losses, short-term mode.*

Introduction

The problem of optimization of modes and operational optimal control of the electric power system (EPS) is one of the complex problems of nonlinear mathematical programming. The problem of optimisation of modes and operational optimal control of EPS is one of the complex problems of nonlinear mathematical programming. Its solution consists in finding the optimal values of

active and reactive power of tuned stations, voltage of supporting insulators (nodes), values of reactive power of compensating devices, transformation ratios of tuned transformers, which provide reliable supply of high-quality electricity to all consumers with minimum production costs, as well as transmission and distribution of electricity [1, 2, 3]. The listed regulated mode parameters are related to each other and other dependent mode parameters, such as node voltages, power flows and grid currents, etc., by equations and inequalities defining the areas of permissible modes of an electric power system. Taking into account that the nature of the probability and relative inaccuracy of the initial data, as well as taking into account all types of modes and technological limitations, the development of theory and methods, as well as the improvement of the optimisation algorithm for planning short-term modes of EPS becomes an urgent task [4].

Optimisation of the EPS operation mode is carried out for each territorial level separately and at all control levels. In this case, the task related to determination of active and reactive power of EPS nodes, voltages of reference nodes with adjustable reactive power, transformation ratios is set.

As the number of load nodes with uncertain power plant capacities increases, the complexity of power system control increases. The uncertainty of the capacities of load nodes and generated capacities of plants using additional energy resources are usually related to the accuracy of their forecasting. Under such conditions, the results of power system operation mode control also have corresponding uncertainty properties [5].

Methods. Nowadays, to solve the problems of optimisation of EPS operation modes, the criteria of minimum active power losses are widely used [6]. At the same time, models differing in initial assumptions and calculation methods are used as mathematical models. Such control models include the Lagrange equation, which leads to the search for the absolute extremum of the functional, as well as gradient models based on the variation of the object parameters.

To solve the optimisation problems using these methods, we use the EPS model [7]:

$$G[W, Y, X, \xi] = 0, \quad (1)$$

where G – internal state variables of the EPS, represented as a functional; W – technological and functional limitations of the nodes of the electrical network; X, Y – vectors of input and output state variables of the EPS; ξ – vector of uncertain random factors.

Applied to EPS, G functional can be written as a ratio containing the main regulation parameter - the grid voltage (2). Since the loss of active and reactive

power mainly depends on the voltage in EPS nodes, it is desirable to take into account the change of voltage in nodes, which is determined by the formula:

$$\dot{U}_{load} = \dot{U}_{prod} - \Delta \dot{U}_{load} = \dot{U}_{prod} \left(1 - \frac{Z_{res.e}}{Z_{res.n} + Z_{res.e}} \right), \quad (2)$$

where \dot{U}_{load} – value of the load voltage; \dot{U}_{prod} – the voltage value of the electricity produced by the generator; $Z_{res.e}$ – complex resistance of the electrical network; $Z_{res.n}$ – complex load resistance of the network.

From expression (2) we can see that the voltage in electric networks varies depending on the composition of power receiving devices (power consuming devices).

According to the requirements, the power supply voltage shall be determined according to the nominal (or agreed) value (in per cent) with its gradual variation in both negative and positive directions at the point of power transmission:

$$\delta U_{(-)} = \left[\left(U_0 - U_{nom(-)} \right) / U_0 \right] \cdot 100, \quad (3)$$

$$\delta U_{(+)} = \left[\left(U_0 - U_{nom(+)} \right) / U_0 \right] \cdot 100, \quad (4)$$

where $\delta U_{(-)}$, $\delta U_{(+)}$ – negative and positive voltage deviation in the mains supply, respectively; $U_{nom(-)}$, $U_{nom(+)}$ – averaged positive and negative values of the nominal voltage; U_0 – the required nominal voltage of the electrical network.

According to process regulations, $\delta U_{(-)}$ and $\delta U_{(+)}$ should not exceed 10 per cent of the rated voltage of the power supply in the time interval under consideration.

The deviation of the network voltage from the nominal voltage is a consequence of the imbalance of active and reactive power of electricity, which is the cause of active and reactive power loss in networks [7, 8]:

$$\pi = \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \left[A_{ij} (P_i P_j + Q_i Q_j) - B_{ij} (P_i Q_j + Q_i P_j) \right], \quad (5)$$

$$q = \sum_{i=1}^{n-1} \sum_{j=1}^{n-1} \left[C_{ij} (P_i P_j + Q_i Q_j) - D_{ij} (P_i Q_j + Q_i P_j) \right], \quad (6)$$

where n – number of nodes in the electrical network; P_{ij} , Q_{ij} – active and reactive power of electricity in nodes; A, B, C, D – coefficients of electric power losses.

The following formulas can be used to calculate power loss factors:

$$\begin{aligned} A_{ij} = A_{ji} &= r_{ij} \cos \varphi_{ij} / U_i U_j, \quad B_{ij} = -B_{ji} = r_{ij} \sin \varphi_{ij} / U_i U_j, \\ C_{ij} = C_{ji} &= x_{ij} \cos \varphi_{ij} / U_i U_j, \quad D_{ij} = -D_{ji} = x_{ij} \sin \varphi_{ij} / U_i U_j. \end{aligned} \quad (7)$$

where r, x – active and reactive impedance of electric network lines; U – voltage at the nodal points; φ – is the phase difference of the voltage vectors at the nodal points.

A change in the capacities at the nodes of the electrical network will lead to a change in the voltage moduli and phases of all nodes, while the balancing node always remains unchanged [9, 10].

Hence, it follows that the steady-state operating modes of EPS nodes are set by the values of active and reactive powers of electric generators and consumer loads in nodes, as well as by the values of their flows through electric networks [11]. In this regard, it is desirable to use balances of electric energy parameters to control operating modes:

$$Y \cdot U = \frac{S^*}{U}, \quad (8)$$

or

$$U Y \cdot U = S, \quad (9)$$

where Y – electrical conductivity of the nodes of the electrical network, U – node stress, U и S – full power voltages at the nodes of the electric network, which are complex-conjugate values.

Results and Discussions. For solving optimisation problems in EPS management, the most important efficiency indicator is to ensure the balance between generation and consumption of energy resources. In this paper, minimisation of active power losses in EPS nodes is taken as the optimality criterion for optimisation problems, which is determined by the formula [12]:

$$\Delta P_{\Sigma} = \Delta P_{load} + \Delta P_{nod} + \Delta P_{dis}, \quad (10)$$

where ΔP_{Σ} – active power losses of electric power in EPS; ΔP_{load} – active power losses of electric power in nodal loads; ΔP_{nod} – regulated values of active power loss of electric power, without discharging electric power; ΔP_{dis} – active power losses during electric power discharge in electric lines.

As a functional we take minimisation of active power loss of electric energy in EPS nodes we use the expression [7, 13]:

$$W = \sum_{i=1}^k W_i = \sum_{i=1}^k \left[\frac{\left(\sqrt{P_i(U)^2 + Q_i(U)^2} \right) \cdot R_{Ei}}{U_i^2} \cdot \left(\frac{1}{\left(1 + \frac{\Delta U_{\%i}}{100} \right)^2} - 1 \right) + \Delta P_{xx(i)} \cdot T_{f(i)} \cdot \left(\frac{U_i}{U_{nom(i)}} \right)^2 + \Delta p_{dis(i)} \cdot L_i \cdot k_{Udis(i)} \right] \rightarrow \min, \quad (11)$$

where W - active power losses in the nodes of the electric network; R_{Σ} , L - active and inductive resistances in transmission lines; $\Delta U_{\%}$ - change in the value of electric power voltage in power grids; $\Delta P_{xx(i)}$ - power loss during idling; $\Delta T_{f(i)}$ - duration of EPS operation during energy resources transfer; $\Delta p_{dis(i)}$ - specific power losses of electric energy during discharge; $k_{Udis(i)}$ - coefficient of power loss of electric energy during discharge.

To minimise the functional (11), the following boundary conditions must be taken into account:

$$\begin{cases} |P_{in(i)} + P_{out(i)}| > 0; \\ |Q_{in(i)} + Q_{out(i)}| > 0; \\ i = 1, \dots, k; \end{cases} \quad (12)$$

where $P_{in(i)}$, $P_{out(i)}$, $Q_{in(i)}$, $Q_{out(i)}$ - internal and external values of active and reactive power, respectively.

In this case, expressions (5), (6), which are differentiated by the corresponding loads [14], can be used for optimal control in normal mode:

$$\sigma_i = \frac{\partial \pi}{\partial P_i} = 2 \sum_{j=1}^{n-1} A_{ij} P_j - 2 \sum_{j=1}^{n-1} B_{ij} Q_j \quad (j \neq i);$$

$$\frac{\partial \pi}{\partial Q_i} = 2 \sum_{j=1}^{n-1} A_{ij} Q_j + 2 \sum_{j=1}^{n-1} B_{ij} P_j \quad (j \neq i) \quad (13)$$

$$\frac{\partial q}{\partial P_i} = 2 \sum_{j=1}^{n-1} C_{ij} P_j - 2 \sum_{j=1}^{n-1} D_{ij} Q_j \quad (j \neq i);$$

$$\sigma Q_i = \frac{\partial q}{\partial Q_i} = 2 \sum_{j=1}^{n-1} C_{ij} Q_j + 2 \sum_{j=1}^{n-1} D_{ij} P_j \quad (j \neq i) \quad (14)$$

The main task of EPS operation mode control is to maintain the optimal value of active and reactive power in electric networks taking into account load changes. To solve this problem, expressions (13), (14) are used.

The active and reactive powers of nodes are functions of the electrical network parameters and complex node voltages, which are expressed as follows [15]:

$$\bar{P}_i(\omega) = U_i(\omega) \sum_{j \in J_i} U_j(\omega) \left\{ g_{ij} \cos[\delta_i(\omega) - \delta_j(\omega)] + b_{ij} \sin[\delta_i(\omega) - \delta_j(\omega)] \right\}, \quad (15)$$

$$\bar{Q}_i(\omega) = U_i(\omega) \sum_{j \in J_i} U_j(\omega) \left\{ g_{ij} \sin[\delta_i(\omega) - \delta_j(\omega)] - b_{ij} \cos[\delta_i(\omega) - \delta_j(\omega)] \right\}, \quad (16)$$

where J_i - the set of nodes that have direct links to the node; g_{ij} , b_{ij} - active and reactive components of the element of the matrix of intrinsic and mutual conductivities; δ_i , δ_j - phase angles of voltage vectors of nodes i and j .

Conclusion.

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ТЕПЛОВЫЕ ПОТЕРИ В СИСТЕМАХ МУЛЬТИФОТОЭЛЕМЕНТНЫХ ФОТОТЕРМОГЕНЕРАТОРОВ

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Аннотация: Работа посвящена исследованию тепловых потерь в мультифотоэлементных фототермогенераторах и их влиянию на общую эффективность систем. Результаты показывают, что оптимизация теплоизоляции и управление тепловыми потоками способны снизить тепловые потери до 20%, что приводит к повышению коэффициента полезного действия (КПД) систем. Исследование подчеркивает необходимость учета тепловых факторов при проектировании для максимизации производительности фототермогенераторов.

Ключевые слова: тепловые потери, эффективность, фототермогенераторы, теплоизоляция, оптимизация, климатические условия.

Введение: Актуальность исследования тепловых потерь в фототермогенераторах связана с их значительным воздействием на общую производительность солнечных систем. Тепловые потери особенно важны в условиях высокой солнечной активности, когда чрезмерное нагревание может негативно влиять на КПД и долговечность элементов системы. Таким образом, оптимизация теплоизоляции, а также управление и направление тепловых потоков становятся первоочередными задачами для повышения эффективности. Цель данного исследования — оценить влияние различных теплоизоляционных материалов и стратегий управления тепловыми потоками на тепловые потери фототермогенераторов и выявить оптимальные решения для их минимизации.

Обзор и анализ литературы: Исследования показывают, что тепловые потери могут составлять до 30% в традиционных солнечных системах, особенно в регионах с высокой температурой окружающей среды. Петров (2022) описывает методы уменьшения тепловых потерь, включая использование специализированных теплоизоляционных материалов и методов защиты от перегрева. Сидорова и др. (2023) указывают, что оптимизация тепловых потоков, в том числе использование теплоизоляционных слоев, может повысить эффективность на 15%. Иванов (2021) отмечает значительное влияние ориентации и правильной установки панелей, что также может снижать тепловые потери. Смирнова (2024) подчеркивает важность учета климатических условий, включая влажность и

инсоляцию, при выборе теплоизоляционных материалов. В статье Ларсона (2023) обсуждается интеграция технологий для управления тепловыми потоками, что может повысить производительность на 20%, показывая потенциал для внедрения таких подходов в солнечных системах.

Методология: В рамках исследования были проведены лабораторные и компьютерные тесты для оценки тепловых потерь. В лабораторных условиях различные теплоизоляционные материалы (например, аэрогели, полиуретан и гибридные изоляционные слои) подвергались термическому и световому воздействию для определения их эффективности в условиях интенсивного солнечного нагрева. Тепловизионная диагностика позволила визуализировать и измерить потери, а компьютерное моделирование с использованием программного комплекса ANSYS оценивало тепловые потоки при различных климатических условиях. Данные были обработаны с помощью статистических методов, что позволило выявить закономерности и определить наиболее эффективные изоляционные материалы и методы их применения.

Полученные результаты: Результаты исследования показали, что оптимизация теплоизоляции способна снизить тепловые потери до 20%, что приводит к повышению КПД системы на 10-15%. При использовании современных теплоизоляционных материалов, таких как аэрогели и многослойные покрытия, наблюдалось снижение тепловых потерь на 15% по сравнению с традиционными системами. Эксперименты показали, что правильная установка и оптимальная ориентация панелей также способствуют снижению потерь. В условиях высокой солнечной активности тепловые потери достигали уровня 25% для незащищённых систем, что подтверждает необходимость использования комплексных решений для минимизации потерь. Это требует тщательного подхода к проектированию систем с учётом тепловых факторов, что позволяет улучшить их производительность.

Анализ результатов и дискуссия: Анализ данных показал, что тепловые потери играют критическую роль в эффективности фототермогенераторов. Оптимизация теплоизоляции и внедрение технологий управления тепловыми потоками могут существенно повысить КПД систем, однако высокие первоначальные затраты на современные теплоизоляционные материалы могут стать препятствием для их широкого использования. К тому же, результаты экспериментов подчеркивают необходимость адаптации теплоизоляции под климатические условия, поскольку воздействие на тепловые потоки и температуру системы

варьируется в зависимости от окружающей среды. Таким образом, разработка адаптивных решений и технологий для управления тепловыми потоками представляется перспективным направлением исследований. Также необходимо учитывать долгосрочные эксплуатационные затраты на поддержание эффективности теплоизоляции.

Заключение: Исследование тепловых потерь в фототермогенераторах подтверждает важность использования оптимизированной теплоизоляции для повышения общей производительности солнечных систем. Применение инновационных теплоизоляционных материалов, комплексный подход к управлению тепловыми потоками и адаптация под климатические условия могут обеспечить значительное снижение тепловых потерь, делая фототермогенераторы более эффективными и конкурентоспособными. Перспективы дальнейших исследований включают разработку адаптивных решений для улучшения устойчивости к изменяющимся условиям окружающей среды.

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ИНТЕГРАЦИЯ МУЛЬТИФОТОЭЛЕМЕНТНЫХ ФОТОТЕРМОГЕНЕРАТОРОВ С СУЩЕСТВУЮЩИМИ ЭНЕРГЕТИЧЕСКИМИ СИСТЕМАМИ

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Аннотация: Работа посвящена интеграции мультифотоэлементных фототермогенераторов в существующие энергетические системы. Результаты показывают, что такая интеграция может повысить общую

эффeктивность на 20% и снизить затраты на электроэнергию. Исследование акцентирует внимание на стратегиях внедрения.

Ключевые слова: интеграция, энергетические системы, фототермогенераторы, эффективность, устойчивость.

Актуальность интеграции мультифотоэлементных фототермогенераторов в существующие энергетические системы обусловлена необходимостью повышения эффективности и устойчивости энергетических ресурсов. Солнечная энергия становится все более важной в общем энергетическом балансе стран. Интеграция новых технологий может значительно улучшить производительность и снизить затраты на электроэнергию. Цель данного исследования — оценка возможностей интеграции мультифотоэлементных систем в существующие энергетические сети. Задача заключается в выявлении оптимальных стратегий для успешного внедрения.

Исследования показывают, что интеграция мультифотоэлементных систем может значительно повысить эффективность энергетических сетей. В работе Сидорова и Михайлова (2023) подчеркивается, что использование мультифотоэлементных технологий может повысить общий коэффициент полезного действия на 20%. Петров (2022) рассматривает опыт успешной интеграции солнечных технологий в традиционные энергетические системы, отмечая снижение затрат на электроэнергию. Ларсон и др. (2021) акцентируют внимание на необходимости адаптации существующих сетей для работы с новыми технологиями. Также имеется ряд исследований, указывающих на потенциальные барьеры для интеграции, такие как законодательные ограничения и недостаточная инфраструктура (Иванов, 2022). Смирнова (2024) обсуждает возможные стратегии внедрения, включая государственные субсидии и образовательные программы.

В исследовании использовались методы анализа данных и моделирования для оценки интеграции мультифотоэлементных систем в существующие энергетические сети. Лабораторные испытания проводились для анализа производительности интегрированных систем. Также использовались методы статистической обработки данных для выявления закономерностей. Моделирование проводилось с помощью специализированного программного обеспечения, что позволяло оценить производительность систем в различных условиях эксплуатации.

Результаты показали, что интеграция мультифотоэлементных фототермогенераторов может повысить общую эффективность энергетических систем на 20%. При тестировании интегрированных систем зафиксировано снижение затрат на электроэнергию на 15%. Также было

установлено, что использование умных сетей позволяет улучшить управление энергопотоками и снижает потери на 10%. В ходе экспериментов выявлено, что успешная интеграция требует адаптации существующей инфраструктуры, что может потребовать дополнительных инвестиций. Важным аспектом стало также создание системы мониторинга для оценки эффективности интеграции.

Анализ данных показывает, что интеграция мультифотоэлементных систем может значительно повысить эффективность существующих энергетических сетей. Однако для успешного внедрения необходимо учитывать ряд факторов, таких как законодательные ограничения, технические барьеры и необходимость модернизации инфраструктуры. Дискуссия о возможностях интеграции подчеркивает важность комплексного подхода, который включает в себя обучение персонала и информирование потребителей о преимуществах новых технологий. Также важно рассмотреть возможные сценарии дальнейшего развития энергетических систем, включая увеличение доли возобновляемых источников.

Интеграция мультифотоэлементных фототермогенераторов в существующие энергетические системы представляет собой перспективное направление для повышения эффективности и устойчивости энергетических ресурсов. Необходим комплексный подход к внедрению технологий, учитывающий все аспекты интеграции.

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СОВРЕМЕННЫЕ РАБОТЫ ПО ИЗУЧЕНИЮ САМОЙ КРУПНОЙ ПЛАНЕТЫ СОЛНЕЧНОЙ СИСТЕМЫ

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Аннотация. *В настоящем исследовании проводится анализ современных достижений науки и техники на пути исследования самого большого и массивного объекта в Солнечной системы, кроме её звезды – планеты Юпитер. Большое внимание уделяется анализу его внутренней структуры и царящей там среды, наряду с параллельным анализом возможностей технологий для исследования планеты при указанных физических условиях.*
Ключевые слова: *планета Юпитер, газовый гигант, среда, физико-математическое моделирование, исследование, анализ.*

Планета Юпитер, являющаяся вторым самым большим, после Солнца по величине и объёму объектов в Солнечной системе, представляется в виде довольно интересного объекта для изучения, наряду с самыми различными космическими объектами. Так, именно эта планета, открытая ещё гениальным учёным Галилео Галилеем, стала одной из ключевых причин крушения геоцентрической теории, а также нагляднейшим доказательством того, что не все объекты в системе вращаются вокруг Земли или Солнца, что в свою очередь нанесло удар и в сторону гелиоцентрической системы [1]. Юпитер обладает огромным количеством самых различных спутников и сегодня известно более 80 спутников, однако первыми из них были открыты именно, так называемые спутники Галилея, названные его немецким коллегой – Ганимед, Европа, Ио и Калисто. Юпитер – это газовый гигант, не похожий на иные планеты с твёрдой поверхностью, объятый большой толстой атмосферой. Это стало также причиной того, что именно на этой планете находится самый большой ураган во всей Солнечной системе, размером с планету Земля, именуемый «Большим красным пятном» и который продолжается на протяжении сотни лет и к тому же, скорость ветра в нём достигает 650 км/ч или 350 узлов [2-3]. Стоит также отметить, что лишь по своему малому диаметру, ибо он обладает формой эллипсоида, он

примерно равняется Земле, а его больший диаметр сравнительно больше диаметра Земли [4].

Интересным является непосредственное установление первоначальной связи с планетой, а именно процесс перевода с оптической части спектра на радиоволновое, можно увидеть излучения магнитного поля планеты, образуемые в мощной магнитосфере. Так, первая информация об этом излучении была получена со стороны «Пионера-10» 12 марта 1973 года, после коего все модели были оснащены мощной системой безопасности против сильного электромагнитного излучения, но следующая преграда – мощная атмосфера, ещё более весомая по своей опасности, нежели опасность электромагнитного фона.

Впервые подвиг проникновения через атмосферу планеты удаётся аппарату «Галилео» 8 декабря 1995 года, когда его экспедиция была начала и на протяжении 8 лет это устройство передаёт информацию об анализе как самой планеты, так и спутников. Так, первый его спутник Ио – очень тектонический космический объект с большим количеством вулканом и немного превосходящий по размерам Луну, в отличие от спокойной и снежной Европой, под которой, как предполагается имеется огромный океан. Имеют место предположения, что в этой жидкой ледяной воде может обитать самая настоящая жизнь.

Но ни Ио, ни Европа не имеют магнитное поле, как Ганимед – самый большой спутник не только среди спутников Юпитера, но и среди всех спутников в Солнечной системе. Возвращаясь к самой атмосфере Юпитера, стоит полагать, что и его исследования были осуществлены со стороны Галилео, а точнее со стороны его атмосферного зонда, который включился на высоте 350 000 километров над облаками Юпитера и спустя 6 часов со скоростью 48 км/с он коснулся атмосферы планеты и 57 секунд затратил только на процесс торможения [5-6].

Его датчики улавливают резко растущее значение температуры, которое достигает значений 16 000 градусов Цельсия. Помогает вытяжной парашют, уменьшая скорость до 120 м/с и это происходит лишь в верхних слоях атмосферы, которая по своей величине лишь в начале была выше, а в небольших последующих слоях равняется земной атмосфере. Открывается также второй основной парашют, уменьшая скорость до 27 м/с, что уменьшает также и температуру, после чего в течении часа передаётся важнейшая информация о структуре атмосферы Юпитера, также измеряется общая температура, фиксируется огромное количество молний, которые в столь плотных облаках планеты – очень частое явление. Кроме того,

фиксируются данные о получаемой энергии из Солнца, со сравнением энергии, излучателем коего является ядро планеты.

На глубине в 180 км, при температуре в 150 градусов Цельсия и давлении 2 300 000 Гпа, что сравнимо с атмосферным давлением в 101 325 Па в 22,7 атмосферах радиопередатчик перегревается и устройство перестаёт передавать информацию. Однако, он продолжает свой полёт на протяжении нескольких часов, температура и давление начинает расти, приводя к тому, что в конце концов плавиться и испаряется в обширной атмосфере планеты, превращаясь в её часть.

«Галилео» закончил своё существование, получив эту же участь спустя 8 лет беспрестанной службы. Но стоит сказать, что это лишь начало путешествия и наступит время, когда уже можно будет говорить о создании более мощных устройствах, оснащённые новыми ядерными двигателями, использующие термоядерные или резонансные ядерные реакции. Энергии, получаемой из таких источников энергии будет достаточно для того, чтобы проникать на большую глубину, поддерживая более толстую конструкцию оболочки, способная выдерживать более большие атмосферные давления, продолжая проникновение в глубокие слои атмосферы. Кроме того, обращая внимание на химический состав Юпитера, в составе коего преобладает водород, азот и некоторые другие газообразные соединения, отмечается наличие огромного океана жидкого водорода, который в последующим превращается в твёрдое ядро.

Имеет место также дальнейший анализ планеты, наряду с рассмотрением возможности участия на роли пассажира космического корабля такого типа – человека. Могли бы быть разработаны полноценные установки, способные получать даже при необходимости энергию из молний, количество коих просто огромно, не говоря о сверхбыстрых ветрах, которые уже можно применять не для ветровых генераторов, а для полноценных ионных двигателей или точнее ионных генераторах. Среди всего перечисляемого настоящим вызовом для человеческой цивилизации, как и покорение Эвереста, остаётся покорение «Большого красного пятна», пока оно не превратило своё существование, ибо если сравниваться даже данные, полученные в начале прошлого столетия, мощности и размеры самого большого урагана в системе уменьшаются с каждым разом. Из вышеописанного видно, что достижение поставленных результатов вполне реально и возможно, что в свою очередь выведет человеческую цивилизацию и её возможности на новый уровень.

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ENERGETIKA TIZIMI VA ATROF-MUHIT EKOLOGIYASI MUAMMOLARI

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***Аннотация.** Bugungi raqamli texnologiyalar davrida butun dunyo mamlakatlari iqtisodiyotida asosiy va tayanch tarmoqlardan biri bo'lib elektroenergetika ekanligi hech kimga sir emas. Fan-texnika rivojlanib borayotgan bir davrda xalq xo'jaligi barcha tarmoqlarining elektrlashtirilishi va avtomatlashtirilishi elektroenergetika tamog'iga bo'lgan talab va ehtiyojni yanada oshirdi.*

***Калит сўзлар.** IES, TES, CES, kilovat, AES, vodorod energiya*

Кириш. Elektr energiyasi ishlab chiqarish manbalariga ko'ra enetgetika sanoati uch turga bo'linadi: issiqlik, gidro va atom energetika tarmoqlaridir. Mamlakatimiz energetika tizimi-bugungi kunga kelib umumiy quvvati 11,3 million kilovattga ega bo'lgan 37 ta issiqlik va gidravlik elektr stansiyalarini o'z ichiga oladi. O'zbekistonda ishlab chiqarilayotgan ekekr energiyagining 85 foizini IES larda ishlab chiqariladigan elektr energiyasi tashkil etadi. Aksatiyat IES tarda elektr energiya va issiqlik energiyasi (bug') ishlab chiqariladi. Bunday IES lami TES (IEM) issiqlik elektr markazlari deyiladi. Issiqlik energiyasini 20 kilometrdan uzoq masofaga uzatish qiyinligi uchun TES lar foydalanuvchilarga yaqin joylarda erkin industrial-iqtisodiy hududlari yoki yirik ishlab chiqarish tarmoqlari yaqinida quriladi. Ularda elektr energiya ishlab chiqarish vaqtida isitilgan suvni ishlab chiqarish ehtiyojlari uchun yuboriladi. O'zbekiston tog' daryolari gidroresurslarga boy bo'lib. CES lar, gidrouzellar (suv taqsimlagich), ekekr energiya ishlab chiqarish, xo'jaliklarni suv bilan ta'minlash, baliqchilikni rivojlantirish masalalarini ham qamrab oladi.

Elektr quvvatidan xalq xo'jaligi tarmoqlarida foydalanish balansida ishlab chiqarish hamda qurilish sohasi yetakchi o'rinni egallaydi. Ular butun energiya tizimining salkam 60 foizini iste'mol qiladi. Qishloq xo'jaligida ishlatilayotgan elektr energiya 20 foizdan ortiq. Mamlakatimiz yagona enetgiya tizimiga ega bo'lib, u o'z navbatida Markaziy Osiyo mamlakatlari bilan ham bog'langan. Bu tizim ishlab chiqarilayotgan elektr energiyasini qo'shni mamlakatlarga eksport qilish

imkonini beradi. Zarur hollarda elektr energiya olib turish imkoniyatini beradi. Eng muhimi yangi energiya tizimida barcha turdagi elektr stansiyalar o'zaro bog'langan bo'lib, issiqlik energiyasi hamda gidro elektr stansiyalarining mavsum davomida ishlab turishini nazorat qilish va tartibga solish imkonini berib boradi.

Elektr enetgiya hosil qilishda AES lar, shamol, to'liqin. qalqish, geotermal, quyosh elektr stansiyalarining ham katta ahamiyatga ekanligini takidlab o'tishimiz kerak. Ammo bizning mamlakatimizda ulaming ahamiyati uncha katta emas. Respublikamiz bitmas-tuganmas quyosh energiyasiga boy. Undan foydalanish bo'yicha yirik ilmiy, amaliy tadqiqotlar olib borilmoqda. Shulardan eng yirigi Patkent tumanida joylashgan Markaziy Osiyoda yagona bo'lgan "Fizika-Quyosh" inshooti hisoblanadi.

Atom energetikasi borasida ham Toshkent shahri yaqinidagi Ulug'bek shaharchasida ilmiy tadqiqotl ishlari olib borilmoqda. Shu munosabat bilan O'zbekistonda yaqin kelajakda AES lardan foydalanish rejalashtirilmoqda. O'zbekistonda geotermal (yerning ichki issiqligi) va shamol energiyasidan ham foydalanish imkoniyatlari katta. Shamol yil bo'yi ko'p esadigan Yangiyer, Bekobod, Xovos tumanlarida shamol energiyasidan foydalanish mumkin va zarur.

Hozirgi kunda mamlakatimizning barcha elektr stansiyalarida 55 milliard kilovatt energiya ishlab chiqarilmoqda. Ishlab chiqarilayotgan energiya manbalari qanchalik ko'p bo'lmasin, u qachonlardur tugashi mumkin. Daryo miqyosida shartli issiqlik energiyasi manbalaridan foydalanish kishi boshiga bir yilda 2 tonnani tashkil etadi.

Mamlakatda aholining ko'payib borishi yillar o'tishi bilan energiya inqirozini keltirib chiqarishi mumkin. Shuning uchun yangi turdagi ekologik toza energiya manbalarini topish kerak. Yurtimizning tabiiy iqlim sharoiti Quyosh energiyasidan qayta foydalanishga imkon beradi. Bunday energiya turlarini tugamaydigan va abadiy deb hisoblash mumkin. Quyosh nuridan energiya olish uchun mo'ljallangan stansiyalar O'zbekiston, Turkmaniston, Qozog'iston va Azarbayjon Respublikalarida yaxshi yo'lga qo'yilgan.

Ekologik toza energiya sohasi olimlarining ma'lumotlariga qaraganda, Markaziy Osiyo hududida Quyosh nurining 70+70 kilometr kvadrat maydondan olingan energiya quvvati, 600 million tonna neft energiyasi quvvati bilan barobar ekan.

Xuddi shunday kilometr kvadratdan Qoraqum cho'lida 60 dan ziyod uskuna qurish mumkin. Quyosh energiyasidan foydalanish bo'yicha chet mamlakatlarda ham qator tadbirlar ishlab chiqilgan, jumladan Yaponiyada hamda Arabiston yarim orollari mamlakatlarida "Quyosh yog'dusi" nomli milliy dastur joriy qilingan.

Uning maqsadi neft, gaz va ko'mirga bo'lgan energiya qaramligini kamaytirish ekologik muammolarni oldini olishga qaratilgan.

Chet el mamlakatlarida vodoroddan energiya olish ustida tadqiqotlar olib borilmoqda. Shu jumladan yurtimizda ham ekologik toza energiyadan foydalanish juda katta afzallikka ega ekanligini amada isbotlanmoqda. Shaharlardagi yirik jamoat binolari tomida quyosh nuridan energiya olish uchun mo'ljallangan stansiyalar o'rnatilsa, shu hududda sarf bo'layotgan elektr energiyani tajalishiga olib keladi. Tabiiy tuganmas energiya manbasi sifatida shamoldan olish mumkinligini takidlab o'tishimiz mumkin. Mamlakatimizdagi iqlim sharoiti bunga imkon berishini yana bir bor ta'kidlab o'tishimiz mumkin. endi bunda manbalarni tadbiq qilish hamda yo'lga qoyishni dasturiy amal qilib belgilab olishimiz kerak.

Foydalanilgan adabiyotlar:

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2. *O'zbekiston Respublikasi Prezidentining 2023-yil 16-fevraldagi PQ-57-son qarori.*
3. *Karimova D.A., To'xtayev F. S. "Sanoat ekologiyasi" Toshkent 2017-yil. O'quv qo'llanma*
4. *The solar division of 3 Comm Zrt. has been present since 2010, with its headquarters in Szeged and its*
5. *own highly qualified construction teams.*
6. *The company uses specialist engineers to assess the needs and provide the most appropriate solution. It then uses quality components to build solar systems that will ensure long-term operation.*
7. *The added value of 3 COMM Zrt. lies in the 'life-long' aftercare, monitoring and troubleshooting service following system installation.*
8. *The Tiszavirág Sportuszoda in Szeged in 2020 was a priority project for a 200 kW power optimised system of 748 Sharp solar panels. The Solaredge inverter - Sharp solar panel pair provides the performance optimized outstanding yield.*
9. *SolarEdge case study: "Hungary's first 1 MWp SolarEdge technology optimised solar PV system in Szeged exceeds expectations" ([link](#)), built by us in 2017. This power plant was later extended with a 1MWp system. "Cost saving string design with Sharp PV panels and SolarEdge inverters", ([link](#)) two outstanding, published, case studies of the company. Sharp's photovoltaic panels with their cost effective string design sets the company apart from the competition in the solar industry, and combined with SolarEdge inverters, the company achieves a position that deservedly places 3 Comm Zrt. in the top tier of the quality hierarchy. Other featured media material is the Videoton Holding project publication:*

ВЛИЯНИЕ КЛИМАТИЧЕСКИХ УСЛОВИЙ НА ЭФФЕКТИВНОСТЬ РАБОТЫ МУЛЬТИФОТОЭЛЕМЕНТНЫХ ФОТОТЕРМОГЕНЕРАТОРОВ

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Аннотация: Данная работа исследует влияние климатических условий на эффективность работы мультифотоэлементных фототермогенераторов. Результаты показывают, что факторы, такие как температура, влажность и уровень солнечной радиации, могут снижать эффективность систем на 15-20%. Исследование предлагает рекомендации по оптимизации работы технологий в различных климатических зонах.

Ключевые слова: климатические условия, эффективность, фототермогенераторы, температура, солнечная радиация.

Введение: Актуальность изучения влияния климатических условий на эффективность мультифотоэлементных фототермогенераторов обусловлена

необходимостью оптимизации их работы в различных географических и климатических зонах. Многие солнечные технологии демонстрируют разные уровни эффективности в зависимости от температуры, влажности и солнечной радиации. Понимание этих факторов позволяет более точно прогнозировать производительность систем и улучшать их эксплуатационные характеристики. Цель данного исследования — анализ влияния климатических условий на работу фототермогенераторов и разработка рекомендаций по их оптимизации в различных условиях. Задача заключается в выявлении ключевых климатических факторов, влияющих на эффективность систем.

Обзор и анализ литературы: Исследования показывают, что климатические условия могут значительно влиять на производительность фототермогенераторов. В работе Alomar et al. (2022) рассматриваются влияние температуры на эффективность солнечных панелей, указывая, что при повышении температуры на 5°C эффективность может снижаться на 10%. Исследование Rodriguez et al. (2023) подчеркивает, что высокая влажность может приводить к образованию конденсата, что также негативно сказывается на производительности. В статье Kumar et al. (2021) обсуждаются особенности работы солнечных систем в условиях переменной солнечной радиации, выявляя, что нестабильные условия могут снижать эффективность на 15-20%. Работа Zhang et al. (2024) акцентирует внимание на методах мониторинга климатических условий для оптимизации работы солнечных систем. Наконец, исследование Smith et al. (2023) рассматривает влияние пыли и загрязнений на эффективность солнечных панелей, указывая на необходимость регулярной очистки для поддержания производительности. Все эти исследования подтверждают, что климатические условия имеют значительное влияние на эффективность мультифотоэлементных фототермогенераторов.

Методология: В данном исследовании использовались методы полевых испытаний и мониторинга для оценки влияния климатических условий на эффективность фототермогенераторов. Были установлены датчики для измерения температуры, влажности и уровня солнечной радиации в различных климатических зонах. Проводились тесты производительности систем в условиях реальной эксплуатации, а также проводился анализ данных по эффективности в зависимости от климатических факторов. Статистическая обработка данных осуществлялась с использованием методов регрессионного анализа для выявления закономерностей. Моделирование проводилось с помощью программного

обеспечения для анализа энергетических систем, что позволяло предсказать поведение технологий в различных климатических условиях.

Полученные результаты: Результаты исследования показали, что температура и влажность являются ключевыми факторами, влияющими на эффективность мультифотоэлементных систем. При повышении температуры на 5°C производительность систем снижалась в среднем на 10%. В условиях высокой влажности (более 80%) эффективность падала на 15%. Также было установлено, что в условиях переменной солнечной радиации эффективность систем колебалась на уровне 20%, что подчеркивает важность мониторинга и адаптации технологий. В регионах с высокой пыльностью снижение производительности достигало 25%, если панели не очищались регулярно. Эти данные подчеркивают необходимость учета климатических условий при проектировании и эксплуатации фототермогенераторов.

Анализ результатов и дискуссия: Анализ полученных данных показывает, что климатические условия значительно влияют на производительность мультифотоэлементных фототермогенераторов. Снижение эффективности на 10-25% в зависимости от температуры, влажности и загрязнений подчеркивает необходимость разработки адаптивных технологий, которые будут учитывать местные климатические особенности. Важно также отметить, что нестабильные условия могут привести к неэффективному использованию ресурсов, что требует более тщательного мониторинга и прогнозирования. Дискуссия о возможностях оптимизации работы технологий должна сосредоточиться на разработке рекомендаций для эксплуатации систем в различных климатических зонах, а также на внедрении новых технологий, которые могут минимизировать влияние неблагоприятных условий на эффективность.

Заключение: Таким образом, влияние климатических условий на эффективность мультифотоэлементных фототермогенераторов является важным аспектом, который необходимо учитывать при их проектировании и эксплуатации. Правильное понимание и адаптация к местным климатическим условиям могут значительно повысить производительность солнечных технологий. Дальнейшие исследования в этой области помогут выявить эффективные стратегии для оптимизации работы фототермогенераторов в различных климатических условиях.

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V SHO'BA. AXBOROT TEXNOLOGIYALARI, SUN'IY INTELLEKT VA KIBER XAVFSIZLIK SOHALARIDAGI DOLZARB MUAMMOLAR



PROBLEMS AND PROSPECTS OF USING ARTIFICIAL INTELLIGENCE IN CYBERSECURITY

Yuldosheva Dilfuza Shokir qizi

Fergana branch of TUIT named after Muhammad Al-Khorazmi

Abstract: *Cybersecurity is no longer an option, but a necessity in our digital age. As we integrate technology into every aspect of our lives, the threats to our digital existence continue to evolve. At the forefront of this digital battle is artificial intelligence (AI). In this blog, we will look at the opportunities and challenges that AI brings to the cybersecurity space.*

Keywords: *Role, Artificial Intelligence, Cybersecurity, Threat Detection, Anomalies, Predictive Analysis, Automated Response, Adversarial Attacks, Data Privacy, AI Bias, Autonomous Systems, Threat Analytics, Quantum Computing, Ethical Hacking, Privacy.*

Traditional approaches to cybersecurity rely heavily on predefined rules and patterns to identify threats. However, cybercriminals operate outside these predefined boundaries, constantly inventing new attack methods that evade detection. This is where AI becomes a real champion. It can process colossal amounts of data, identify strange patterns and anomalies that usually escape the attention of analysts, and adapt to emerging threats in real time.

To put this into perspective, consider this: AI-powered systems can detect abnormal user behavior that indicates a potential breach, such as unauthorized access or irregular data transfer patterns. The ability to quickly and accurately identify such anomalies makes AI a formidable ally in cybersecurity.

AI's reach extends beyond defense to include prediction. By carefully studying historical data and identifying trends, AI can predict potential cyber threats. This proactive, autonomous approach allows organizations to strengthen their defenses before an attack can unleash its destructive potential.

For example, AI algorithms can analyze network traffic data to predict the possibility of distributed denial of service (DDoS) attacks, allowing for proactive

countermeasures. This predictive analysis significantly reduces the element of surprise that cybercriminals rely on.

If a threat emerges, AI is ready to respond to it quite quickly. Automated responses, such as isolating compromised systems or blocking malicious network traffic, can be performed without human intervention. This not only reduces response time, but also ensures a consistent approach to eliminating threats, reducing the likelihood of human error.

A scenario in which artificial intelligence detects suspicious activity and promptly disconnects the affected device from the network, thereby preventing further compromise. This level of automated response can be a game-changer in situations where prompt action is essential to prevent data leakage or system damage.

For all its capabilities, AI is not invulnerable; it has its Achilles heel: adversarial attacks. These involve manipulating AI algorithms by feeding them false or specially prepared data. Such attacks can trick AI systems into classifying malicious actions as benign, essentially turning our defenses against us.

Combating these deceptive tactics requires constant vigilance and regular updating of AI models to detect and mitigate adversary attacks as they evolve.

The effectiveness of AI depends largely on access to vast amounts of data, some of which may contain sensitive or personal information. Mishandling or misusing this data creates serious privacy concerns.

To address this issue, robust data privacy measures are needed. These include encryption to protect data both in transit and at rest, strict access controls to limit who has access to sensitive information, and data anonymization to de-identify data used in AI training processes. In addition, organizations must carefully comply with relevant data protection regulations, such as the General Data Protection Regulation (GDPR), to ensure the security of user data.

AI algorithms inherit biases present in their training data. In cybersecurity, this can lead to underestimation of specific threats, essentially perpetuating the very inequalities that cybersecurity aims to address.

To address this issue, it is critical to carefully select training data. This requires selecting diverse data sets that accurately represent the various demographics and scenarios that the AI will encounter. Additionally, to ensure that AI-powered cybersecurity systems remain fair and unbiased, ongoing monitoring and bias-reduction strategies are necessary.

The future promises fully autonomous cybersecurity systems that can detect, respond to, and eliminate threats without human intervention. These systems will use AI and machine learning to make decisions in real time, eliminating the delays that come with human intervention.

For example: a scenario where a network is under attack and an autonomous cybersecurity system detects the threat, analyzes it, and takes appropriate action – all within milliseconds. This level of autonomy provides reliable protection against rapidly evolving cyber threats.

AI will play a central role in threat intelligence, processing massive amounts of data to identify emerging threats and vulnerabilities. This will allow organizations to stay ahead of cybercriminals by proactively strengthening their defenses.

For example: an artificial intelligence system that can sift through vast amounts of information from a variety of sources—network traffic data, social media feeds, and threat reports—and identify potential threats in real time. Such a system can provide invaluable insights into the evolving threat landscape, allowing organizations to effectively prepare and respond.

Ethical hackers use vulnerability scanners powered by artificial intelligence that automatically identify potential weaknesses in software or network configurations. This allows organizations to fix vulnerabilities before cybercriminals can exploit them, improving overall cybersecurity.

Additionally, organizations should use diverse and comprehensive training data to ensure that AI systems are not unfairly targeted or ignored based on demographics or other factors. Rigorous testing and validation of AI-based cybersecurity systems can help identify and mitigate bias issues.

Conclusion. Artificial intelligence is undoubtedly changing the cybersecurity landscape, offering improved threat detection, predictive analysis, and automated response. However, it also introduces challenges, including adversarial attacks, data privacy issues, and bias. To fully leverage the potential of AI in cybersecurity, organizations must invest in robust AI systems, prioritize data privacy and objectivity, and remain vigilant in addressing emerging issues.

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TRIKOTAJ TO‘QIMALARINING STRUKTURASINI TASNIFLASHDA TASVIRNI QAYTA ISHLASH USULI.

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Annotatsiya: *Mazkur maqolada trikotaj to‘qimalarining strukturasi avtomatik tasniflash uchun tasvirni qayta ishlash usuli taklif etiladi. An’anaviy to‘qimachilik sanoatida matolarni qo‘lda tekshirish va tahlil qilish ko‘p vaqt va resurs talab qiladi. Ushbu maqola texnologik yondashuvdan foydalanib, to‘quv matolarini aniqlash va tasniflash jarayonini real vaqtda va xatolarga chidamli tarzda amalga oshirishni ko‘zda tutadi. To‘lqinli konvertatsiya, Gabor filtrlar va GLCM kabi algoritmlar mato tekstura xususiyatlarini ajratib olish uchun qo‘llaniladi, tasniflashda esa ehtimollik neyron tarmog‘i ishlatiladi.*

Kalit so‘zlar: *Matoning qisqarishi, matoning shikastlanishi, tasvirni tahlil qilish, raqamlashtirish.*

Kirish. An’anaviy to‘qimachilik sanoatida mato tuzilishini tahlil qilish va aniqlash asosan qo‘lda bajariladi. Bu esa ko‘p vaqt va professional ishchilarning mehnatini talab qiladi. Shu sababli, mato tuzilishini aniqlashning samarali va innovatsion usullari zarur bo‘lib, kompyuterni ko‘rish va tasvirni qayta ishlash texnologiyalari bu borada katta imkoniyat yaratmoqda. Hozirgi vaqtda tasvirni qayta ishlash orqali to‘qilgan matolarni avtomatik tasniflash mumkin. 1980-yillarda Yaponiyada mato teksturasining tahlili optik hisoblashdan raqamli tasvirni

qayta ishlashga o'tgan. So'nggi tadqiqotlar GLCM, Gabor filtrlari va Bayes statistikasi kabi usullardan foydalangan holda to'quv matolarini aniqlash imkoniyatini oshirdi. Bu maqolada real vaqt rejimida va xatolarga chidamli to'quv matolarini tasniflash uchun kompyuterni ko'rish texnologiyasi asosida ishlov berish algoritmi taklif etiladi.

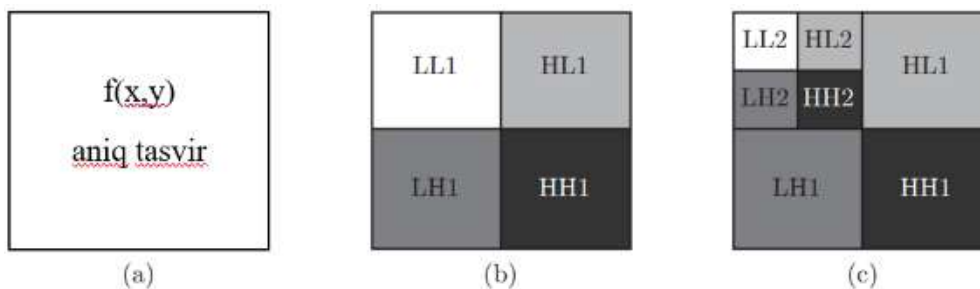


1-rasm: Mato sxemasida tasvirni aniqlashning oqim sxemasi

Metod: 2-D to'liqli konvertatsiya.

Hisoblash miqdorini kamaytirish va shovqinni yo'qotish uchun to'qilgan mato tasvirlarini qayta ishlash uchun 2-D to'liqli transformatsiya [10] qabul qilinadi. To'liqli transformatsiya - bu signaldan ma'lumotni samarali ajratib olishi mumkin bo'lgan vaqt va chastota domenlari o'rtasidagi mahalliy transformatsiya. U egiluvchanlik va translatsiya orqali funktsiya va signal uchun ko'p miqyosli batafsil tahlilni o'tkazishi va Furiye o'zgartira olmaydigan muammoni hal qilishi mumkin.

2 o'lchovli to'liqli konvertatsiya asl tasvir va to'liqli asosiy tasvir o'rtasidagi ichki mahsulotdan keyin qatorlar va ustunlar oralig'ida namuna olish orqali amalga oshiriladi. Har bir konvolyutsiya satrlar va ustunlar bo'yicha 1 o'lchamli konvolyutsiyani parchalashi mumkin, chunki masshtab funktsiyasi va to'liqlar funktsiyasi ajratilishi mumkin. To'liqli o'zgarishlarning birinchi qatlamidan so'ng, asl tasvir to'rtta pastki rasmga bo'linadi: past chastotali taxminiy pastki tasvir LL1 va uchta yuqori chastotali batafsil pastki tasvir (gorizontal pastki tasvir HL1, vertikal pastki tasvir LH1 va). diagonal pastki tasvir HH1). To'liqli parchalanishning ikkinchi qatlamida past chastotali qism (LL1) faqat yuqorida aytib o'tilganidek parchalanadi, keyin u turli chastota diapazoni chiqishlarini ishlab chiqaradi. 2-rasmda ikki qatlamli to'liqli parchalanish diagrammasi ko'rsatilgan.



2-rasm: Ikki qatlamli parchalanish

Rasmning Graylevel Co-occurrence Matrix (GLCM) kulrang darajadagi keng qamrovli ma'lumotlarni ochib berishi mumkin [11,12], ular yo'nalishlar, qo'shni interval va diapazonga oid. Hozirgacha u nazariya va eksperimentda tekstura tahlilining yaxshi usuli ekanligi isbotlangan. GLCM 1973 yilda Xaralik [3] tomonidan chiqarilgan. U kulrang qiymat i va j ni tasvirlaydi, ikki pikselning $C(i, j, d, \theta)$ ehtimollik matritsasi θ yo'nalishi va d masofasida paydo bo'ladi. θ - ikki piksel orasidagi joylashish burchagi. d masofasi ikki piksel orasidagi masofa, odatda aniqlash uchun sinov tasviriga ko'ra. Umuman olganda, tasvirning tekstura xususiyatlarini olish uchun to'rtta umumiy statistika qo'llaniladi: burchakli ikkinchi moment (energiya), kontrast, korrelyatsiya va entropiya, bu nafaqat hisoblash uchun qulay, balki tasniflashning yuqori aniqligini ham beradi.

Ikkinchi burchak momenti (energiya):

$$ASM = \sum_{i=1}^M \sum_{j=1}^N C(i, j, d, \theta)^2, \quad (1)$$

$$CON = \sum_{i=1}^M \sum_{j=1}^N (i - j)^2 C(i, j, d, \theta), \quad (2)$$

$$COR = \sum_{i=1}^M \sum_{j=1}^N \frac{ijC(i, j, d, \theta) - \mu_x \mu_y}{\sigma_x \sigma_y}, \quad (3)$$

bilan

$$\mu_x = \sum_{i=1}^M \sum_{j=1}^N iC(i, j, d, \theta), \quad \mu_y = \sum_{i=1}^M \sum_{j=1}^N jC(i, j, d, \theta),$$

$$\sigma_x = \sum_{i=1}^M \sum_{j=1}^N (i - \mu_x)^2 C(i, j, d, \theta), \quad \sigma_y = \sum_{i=1}^M \sum_{j=1}^N (j - \mu_y)^2 C(i, j, d, \theta),$$

Shu jumladan,

$$ENT = - \sum_{i=1}^M \sum_{j=1}^N C(i, j, d, \theta) \lg C(i, j, d, \theta), \quad (4)$$

GLCM usulida yo'nalish qiymati $\theta, 0^0, 45^0, 90^0, 135^0$ va d masofasi 1 ga teng ekanligi aniqlangan. Shuning uchun, har bir aniqlangan mato tasviri uchun

burchakli ikkinchi momentning 16 o'lchovli GLCM xususiyatlari, kontrast, korrelyatsiya va to'rt yo'nalishdagi entropiya va bir masofa olinadi.

Gabor filtri

Chastota domenida 2-D Gabor filtrining yaxshi ko'p miqyosli va ko'p yo'naltirilgan parchalanishi sifatida u kompyuterni ko'rish va tasvirni qayta ishlashda keng qo'llaniladi. 2-D Gabor funksiyasi trigonometrik funksiya bilan 2-D Gauss funksiyasi [13] tomonidan modulyatsiya natijasidir. Gabor funksiyasidan foydalanib, turli masshtablarda va turli yo'nalishlarda mahalliy chastota domeni ma'lumotlarini olish mumkin. 2-D Gabor funksiyasi $g(x, y)$ va uning Furye konvertatsiyasi $G(\mu, \nu)$ quyidagicha ifodalanishi mumkin:

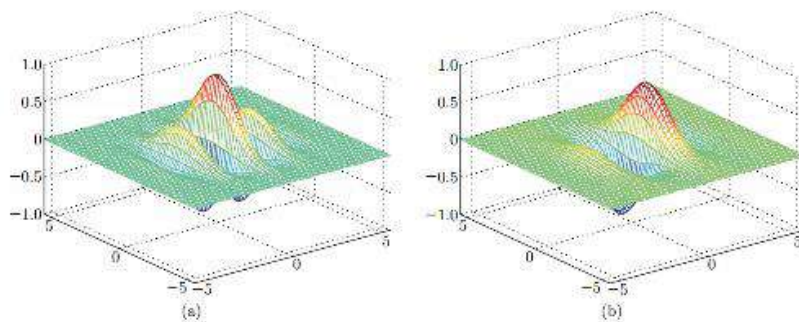
$$g(x, y) = \left(\frac{1}{2\pi\sigma_x\sigma_y} \right) \exp \left\{ -\frac{1}{2} \left(\frac{x_1^2}{\sigma_x^2} + \frac{y_1^2}{\sigma_y^2} \right) \right\} \exp(2\pi j f_0 x_1) \quad (5)$$

$$G(\mu, \nu) = \exp \left\{ -\frac{1}{2} \left(\frac{(\mu - f_0)^2}{\sigma_\mu^2} + \frac{\nu^2}{\sigma_\nu^2} \right) \right\}$$

2-D Gabor funksiyasining haqiqiy qismi tenglama shaklida ko'rsatilgan. (7) tasvirni tekislash uchun bir tekis simmetrik Gabor filtri vazifasini bajaradi. 2-D Gabor funksiyasining xayoliy qismi matoning chekka qismini g'alati simmetrik filtr sifatida aniqlash uchun ishlatiladi. (8). Ikki qism va o'rnatilgan Gabor filtrining o'zaro bog'liqligini tenglama sifatida tasvirlash mumkin. (9). 2-D Gabor funksiyasidan haqiqiy qism va xayoliy qismning umumiy javoblari 3-rasmda ko'rsatilgan.

$$g_e(x, y) = \left(\frac{1}{2\pi\sigma_x\sigma_y} \right) \exp \left\{ -\frac{1}{2} \left(\frac{x_1^2}{\sigma_x^2} + \frac{y_1^2}{\sigma_y^2} \right) \right\} \cos(2\pi f_0 x_1) \quad (7)$$

$$g_o(x, y) = \left(\frac{1}{2\pi\sigma_x\sigma_y} \right) \exp \left\{ -\frac{1}{2} \left(\frac{x_1^2}{\sigma_x^2} + \frac{y_1^2}{\sigma_y^2} \right) \right\} \sin(2\pi f_0 x_1) \quad (8)$$



3-rasm: Asosiy Gabor funksiyasining haqiqiy qismi (a) va xayoliy qismi (b).

$$g(x, y) = g_e(x, y) + jg_0(x, y) \quad (9)$$

Gabor filtrlari tasvirni qayta ishlashda keng qo'llaniladigan vosita bo'lib, tekstura xususiyatlarini ajratib olishda yuqori aniqlik va samaradorlikni ta'minlaydi. 2-D Gabor funktsiyasiga asoslanib, tasvirning xayoliy qismi hisob-kitoblarni ko'paytirsa-da, u tekstura xususiyatlarini ajratishda kam rol o'ynaydi. Shuning uchun Gabor funktsiyasining haqiqiy qismi tekstura xususiyatlarini ajratib olish uchun qo'llaniladi. Ushbu funktsiyani matematik tenglama shaklida ifodalash mumkin. Gabor filtrlari yordamida teksturali tasvirlarning chastota maydonini yaxshiroq qoplash uchun mos tebranish chastotasi va filtr yo'nalishlarini tanlash zarur.

Tasvirni filtr orqali o'tkazish jarayonida Gabor filtrlari masshtab va yo'nalish bo'yicha o'zgaradi. Har bir masshtabdagi filtrlar 0 dan 180 daraja oralig'ida teng ravishda taqsimlanadi. Shu tariqa, turli shkaladagi Gabor filtrlari tasvirga mikroskop singari turli darajadagi chuqurlik va detallarni ajratib beradi. Filtrlangan tasvirlar har bir filtr va kirish tasviri o'rtasidagi konvolyutsiya orqali olinadi. Har bir filtdan olingan tasvirlarning o'rtacha qiymati va standart og'ishlari tekstura xususiyatlari sifatida olinadi, bu esa 80 o'lchovli Gabor xususiyatlarini ajratib olish imkonini beradi.

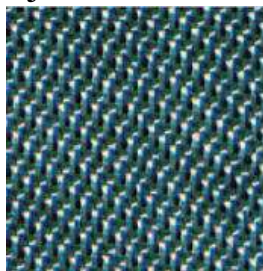
Eksperimental qismda CanonScan 9000F yordamida olingan mato namunalari tekshirilgan. Namunalarga tekis, twill va atlas to'quvlariga ega bo'lgan 45 guruh to'qilgan matolar kiritilgan. Har bir guruh uchun 15 ta rasm tanlangan bo'lib, ular o'quv va sinov maqsadlarida bo'lingan. Maqolada tasvirlarni qayta ishlash jarayoni batafsil bayon qilingan. Dastlab, 256×256 pikselga o'zgartirilgan RGB tasvirlari qayta ishlash samaradorligini oshirish uchun kulrang darajalarga o'tkazilgan. Buning natijasida tasvirlar kontrastini yaxshilash uchun gistogramma tenglashtirildi va ikki tepalikli Gauss funktsiyasi yordamida kulrang darajalar taqsimlandi.

Gabor filtrlarini qo'llash jarayonida tasvirlar turli yo'nalish va masshtablarda tahlil qilinadi, bu esa mato teksturasining noyob xususiyatlarini aniq ajratib olishga yordam beradi. Barcha filtrlar bo'yicha o'tkazilgan konvolyutsiya natijasida, har bir tasvir uchun ko'plab xususiyatlar hosil bo'ladi. Ushbu xususiyatlar o'rtacha va standart og'ishlar orqali o'lchanib, tasvir teksturasi haqidagi ma'lumotni ifodalaydi. Shu bilan birga, Gabor filtrlarining samaradorligi, ayniqsa, mikroskopik tasvirlar uchun yuqori bo'lib, ular tekstura xususiyatlarini chuqurroq va aniqroq tahlil qilish imkonini beradi.

Natijada, to'qilgan matolarning tekstura xususiyatlarini ajratib olishda Gabor filtrlari yordamida yuqori aniqlik va samaradorlikka erishiladi. Ushbu usul yordamida tekstura xususiyatlarini aniqlash uchun mikroskopik darajadagi chuqurlik va detallarni olish imkoniyati mavjud bo'lib, bu tasvir tahlilida muhim

ahamiyat kasb etadi. Gabor filtrlarining bu kabi qo'llanilishi tasvirni qayta ishlash jarayonlarini sezilarli darajada optimallashtiradi va natijalarni yaxshilaydi.

Shim to'qilgan matoning natijalari 4-rasmda ko'rsatilgan.



4-rasm: to'qilgan mato namunalari

Ushbu maqolada mato tasvirini avtomatik tasniflash uchun samarali usul taklif etiladi. 2 o'lchovli to'liqlik transformatsiya orqali tasvir hajmi va tahlil vaqti qisqartiriladi. GLCM va Gabor to'liqlari tekstura xususiyatlarini ajratib olish uchun ishlatiladi. PNN klassifikatori oddiy va tez o'qitish jarayoni bilan naqshlarni aniq tasniflaydi. Eksperiment natijalari 93,33% aniqlik bilan to'quv matolarni samarali tasniflaydi. Kompyuter va tasvirni qayta ishlash texnologiyalarining rivojlanishi mato tasvirlarini avtomatik aniqlash va tasniflash orqali to'qimachilik sanoatiga ijobiy ta'sir ko'rsatadi.

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“IJTIMOIY TARMOQ” SEMANTIK MAYDONINI VOQELANTIRUVCHI GRAMMATIK VOSITALAR VA TURG‘UN BIRIKMALAR (FACEBOOK, TELEGRAM VA INSTAGRAM MISOLIDA)

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Annotatsiya: Biz hozirda axborot asrida yashar ekanmiz, atrofimizni axborot texnologiyalari o‘rab olgan. Barcha soha va yo‘nalishlarga kirib kelgan axborot texnologiyalari deganda insonlarga axborot yetkazuvchi vositalarni tushunamiz. Bular sirasiga internet ham yaqqol misol bo‘la oladi. Internet yordamida ishlovchi ijtimoiy tarmoq platformalari hozirgi kundagi eng qulay va oson, eng ommabop axborot yetkazuvchi vositalar hisoblanadi. Ushbu tezisdagi ijtimoiy tarmoq vositalaridagi ayrim leksik birliklar hamda shu birliklardagi grammatik vositalar va turg‘un birikmalarning o‘rni to‘g‘risida ma’lumot beriladi.

Kalit soʻzlar: *axborot texnologiyasi, tilning grammatik vositalari, turgʻun birikmalar, Facebook, Telegram, Instagram.*

Axborotlarni yigʻish, uzatish, toʻplash, saqlash, taqdim etish va foydalanish uslublari va usullari tizimi axborot texnologiyasi deb yuritiladi.[1] Biz hozirda axborot texnologiyalari (AT) rivojlangan bir pallada yashamoqdamiz. Atrofimizni axborot texnologiyalari turlari, jumladan, komyuter, elektronika, internet oʻrab olgan hamda ular hozirda barcha sohalarga kirib ulgiran. Axborot texnologiyalari oʻz nomidan kelib chiqqan holda insonlarga axborot ulashadi. Axborot ulashish turlicha, masalan, kitoblar orqali axborot ulashish mumkin, televizor orqali axborot ulashish mumkin. Yuqorida kitoblarni misol qilganimiz sababi shundaki, qadimda hali elektronika yaratilmasdan avval, kitoblar pochta vositasida axborot ulashish maqsadida qoʻllanilgan. Asta-sekin axborot texnologiyalari sohasida rivojlanishlar boʻlib, bugungi kungacha katta muvaffaqiyatlarga erishib ulgirdi. Bugungi kunda axborot ulashishning eng qulay va oson yoʻllaridan biri bu – internet.

Bugungi kunda ijtimoiy tarmoq barcha yoshdagilar uchun xizmat qilib kelmoqda. Ijtimoiy tarmoq foydalanuvchilar yildan yil koʻpaymoqda. Foydalanuvchilar ijtimoiy tarmoqdan turli maqsadlarda foydalanishadi, jumladan, ish bilan bogʻliq, koʻngilxushlik, oʻqish bilan bogʻliq va h.k. Ushbu tadqiqot ishimizda ijtimoiy tarmoq platformalaridan Facebook, Telegram hamda Instagram lardagi qoʻllaniluvchi ayrim leksik birliklarda grammatik vositalarning hamda turgʻun birikmalarining oʻrni haqida muhokama qilinadi. Quyida ushbu atamalarga taʼrif beriladi.

Soʻz oʻzgartirish va soʻz yasash qoidalari va grammatik konstruksiyalarni tuzishda qoʻllanadigan usullari majmui tilning grammatik vositalari deb yuritiladi. Bu tartib-qoidalar yigʻindisi tilning grammatik (aniqrogʻi morfologik) turini aniqlashda yordam beradi. Jahondagi tillar grammatik vositalarning qaysi birini koʻproq qoʻllashi va bu vositalardan qaysinisi shu tilda borligi bilan farqlanadi. Turkiy tillari affiksatsiyaning koʻp qoʻllanishi bilan ajralib tursa, vyetnam tilida affiksatsiya deyarli yoʻq, xitoy tilida juda kam uchraydi.[2]

Iboralar turgʻun, yaxlit maʼnoli soʻz birikmalaridir. Shuning uchun soʻz birikmalari: 1) erkin birikmalar va 2) turgʻun birikmalar kabi turlarga ajratiladi. Erkin birikmalarda soʻz birikmasining maʼnosi shu birikmani tashkil etuvchi soʻzlarning maʼnolari yigʻindisidan iborat boʻladi. Bunday birikmalarda tobe va hokim soʻzlarni almashtirib, yangi-yangi erkin birikmalar hosil qilish mumkin: oq qogʻoz, chiroyli bino, koʻprikdan oʻtkazmoq. Qiyoslang: koʻk qogʻoz, oq mato, chiroyli manzara, koʻprikdan sakramoq. Turgʻun birikmalarda maʼno yaxlit, ajralmas boʻladi va ularda tobe yoki hokim soʻzni almashtirish mumkin emas:

oqko'ngil (samimiy, beg'araz), o'pkasi yo'q (hovliqma), ko'ngildan o'tkazmoq (o'y-lamoq, sezmoq), qo'y-moq (tan oldirmoq, iqror qilmoq).[3]

Grammatik vositalarga affiksatsiya, ichki fleksiya, reduplikatsiya, so'zlarni qo'shish, urg'u, intonatsiya, yordamchi so'zlar, so'z tartibi, supplevizm kiradi. Ulardan ijtimoiy tarmoq, jumladan, Facebook, Instagram va Telegramdagi qo'llaniluvchi leksik birliklarda affiksatsiya muhim rol o'ynaydi. Quyidagi misollarda buni ko'rib chiqamiz:

Blog – bu qandaydir bir sahifa, ya'ni ijtimoiy tarmoq foydalanuvchilari tomonidan yaratilgan sahifa bo'lib, unda qiziqarli postlar, ya'ni rasm, video yoki matn joylash mumkin bo'lgan sahifadir. Asosga affiks qo'shilishi bilan bloger leksik birligi paydo bo'lgan: blog+er so'z yasovchi qo'shimchasi qo'shilishi bilan, bloger leksik birligi paydo bo'lib, sahifa yurituvchi ma'nosini bermoqda. Bloger leksik birligiga –lik suffiksining qo'shilishi sababli yana bir leksik birlik yasalmogda. Blog – sahifa ma'nosida kelsa, bloger – uni yurituvchi shaxs, blogerlik – esa jarayon ma'nosida, ya'ni sahifa yaratish jarayoni, shunday kasbga egalik ma'nosida qo'llaniladi.

Reels – bu, asosan, Instagramda mavjud bo'lgan leksik birlik bo'lib, so'nggi paytda Facebook ijtimoiy tarmog'iga ham kirib keldi. Reels – o'z ma'nosida g'altak degan ma'noni bildiradi, ammo yuqoridagi ijtimoiy tarmoqlarda qisqa videolarning har safar yangilanib turishi ma'nosida qo'llaniladi. Ingliz tilida –s ko'plik anglatuvchi qo'shimcha bo'lganligi sababli bu leksik birlikni ham affiksatsiya yo'li bilan hosil bo'lgan leksik birlikka misol keltirishimiz mumkin. Grammatik vosita sifatida affiksatsiya yo'li bilan hosil bo'lmoqda.

Trendda – leksik birligi, asosan, Instagram hamda Facebook ijtimoiy tarmoq platformalari foydalanuvchilari tomonidan qo'llaniladi. Ushbu lisoniy birlik biror videoga nisbatan “mashhurlik” ma'nosida qo'llaniladi hamda grammatik vositalardan –da sintaktik shakl yasovchi qo'shimchasi orqali hosil bo'ladi. Ushbu o'rinda –da qo'shimchasisiz “trend” so'zi ijtimoiy tarmoq platformalari foydalanuvchilari tomonidan qo'llanilishi kam uchraydi.

Internetda suzmoq – turg'un birikmasi “internetdan ko'p miqdorda foydalanish” ma'nosida qo'llaniladi. Ushbu o'rinda “suzmoq” leksik birligi ma'noni kuchaytirish hamda emotsional bo'yoq kasb etish vazifasini o'tamoqda. “Internetda suzmoq” turg'un birikmasida –da affiksi so'zdan ajralmagan holda qo'llaniladi. Bu qo'shimcha o'rniga boshqa bir kelishik qo'shimchasi qo'llanilsa, ma'noga ta'sir etadi.

Xulosa o'rnida shuni aytish mumkinki, ijtimoiy tarmoq platformalarida xorijiy so'zlarning o'zgarmagan holatda qo'llanilishi asta-sekin ko'paymoqda. Yuqoridagi kabi leksik birliklarning qo'llanilishi urfga aylanmoqda. Ba'zi leksik

birliklar qo'llanilishi uchun grammatik vositalarning o'rni beqiyos, ya'ni grammatik vositalarsiz ma'no chiqmaydi. Ba'zilar esa turg'un birikma sifatida qo'llaniladi.

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ISSIQLIK ENERGETIKASI OB'EKTLARINI OPTIMAL BOSHQARISH: QOZON AGREGATLARINING DINAMIK MODELLARINI ISHLAB CHIQISH VA TAHLIL QILISH

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Annotatsiya: Ushbu maqola issiqlik energetikasi ob'ektlarini optimal boshqarishni o'rganadi, qozon agregatlarini dinamik modellashtirish va tahlil qilishga qaratilgan. Unda energiya samaradorligini oshirishning ahamiyati va qozon ishini boshqarish bilan bog'liq muammolar muhokama qilinadi. Maqolada qozonlarda issiqlik uzatish, yonish jarayonlari va bug' hosil bo'lishini tavsiflovchi matematik modellar keltirilgan. Bundan tashqari, u ish unumdorligi va ishonchliligini oshirish uchun qozon agregatlarini boshqarish strategiyalarini, shu jumladan ilg'or algoritmlar va simulyatsiya usullarini o'rganadi. Tadqiqot MATLAB/Simulink va Modelica kabi simulyatsiya vositalarining boshqaruv tizimlarining samaradorligini baholashda muhimligini ta'kidlaydi. Topilmalar issiqlik elektr stantsiyalarida energiyani boshqarishning yanada samarali echimlarini ishlab chiqishga hissa qo'shishga qaratilgan.

Kalit so'zlar: optimal boshqaruv, issiqlik energetikasi, qozon agregatlari, dinamik modellashtirish, energiya samaradorligi, issiqlik uzatish, yonish jarayonlari, boshqarish strategiyalari, simulyatsiya usullari, MATLAB, Modelica

Kirish. Issiqlik energetikasi hozirgi energetika tizimlarida muhim ahamiyat kasb etadi. Ushbu sohada qozon agregatlari (eng. boiler units) energiya ishlab chiqarish jarayonida asosiy komponentlardan biri hisoblanadi. Ularning samaradorligini oshirish va optimal boshqaruv tizimlarini ishlab chiqish energiya resurslarini tejash va ekspluatatsiya xarajatlarini kamaytirishda hal qiluvchi ahamiyatga ega.

Qozon agregatlarining dinamik modellari asosida ularni optimal boshqarish usullarini tadqiq etish, energiya samaradorligini oshirish va xavfsiz ishlashini ta'minlashga yo'naltirilgan muhim qadam hisoblanadi. Ushbu maqolada qozon agregatlarining dinamik modellarini ishlab chiqish, tahlil qilish va ularning ish

rejimlarini optimallashtirish uchun zamonaviy boshqaruv tizimlaridan foydalanish masalalari ko'rib chiqiladi.

Qozon agregatlarining dinamik modellarini ishlab chiqish

Dinamik Modellar Tuzilishi

Qozon agregatlari issiqlik almashinish, yoqilg'i yonishi va bug' hosil qilish kabi jarayonlarni o'z ichiga oladi. Bu jarayonlar bir vaqtning o'zida sodir bo'ladi va dinamik xususiyatlarga ega. Dinamik model bu jarayonlarni matematik ifoda orqali tavsiflashga yordam beradi va qozon agregatining ish rejimlarini optimallashtirishda hal qiluvchi ahamiyatga ega.

Qozon agregati uchun asosiy jarayonlarning umumiy dinamik modeli quyidagicha bo'lishi mumkin:

$$\frac{dT}{dt} = \frac{1}{C} (Q_{in} - Q_{out})$$

Bu yerda:

T — harorat (K),

t — vaqt (s),

C — issiqlik sig'imi (J/K),

Q_{in} — issiqlik kiritimi (J),

Q_{out} — issiqlik chiqimi (J).

Bu tenglama qozon agregatidagi issiqlik jarayonining dinamik modelini tavsiflaydi va haroratning vaqt bo'yicha o'zgarishini ifodalaydi.

Issiqlik balansi

Issiqlik energiyasi qozon agregatining samarali ishlashi uchun muhim omildir. Issiqlik balansi tenglamasi yordamida qozonning energiya samaradorligini aniqlash mumkin. Issiqlik balansi tenglamasi quyidagicha ifodalanadi:

$$Q_{in} = Q_{out} + Q_{loss}$$

Bu yerda:

Q_{loss} — yo'qotilgan issiqlik (J).

Dinamik modelda issiqlik yo'qotishlarni hisobga olish orqali agregatning optimal ishlash holati aniqlanadi.

Qozon Agregatlarining Optimal Boshqarish Tizimlari

Optimal Boshqarish Talablari

Qozon agregatlari energiya samaradorligini oshirish va ekologik ta'sirlarni kamaytirish uchun maxsus boshqaruv tizimlarini talab qiladi. Boshqaruv tizimining asosiy maqsadi issiqlik va bug' ishlab chiqarish jarayonlarini optimal holatda ushlab turishdir.

Optimal boshqaruvni amalga oshirish uchun qozon agregatining dinamik xususiyatlarini tahlil qilish zarur. Bu tahlil algoritmlari yordamida amalga oshiriladi, masalan:

$$\min J(u) = \int_0^T ((y_{\text{ref}}(t) - y(t))^2 + \lambda u(t)^2) dt$$

Bu yerda:

$J(u)$ — boshqarish xarajati funksiyasi,

$y_{\text{ref}}(t)$ — maqsadli chiqish qiymati,

$y(t)$ — haqiqiy chiqish qiymati,

$u(t)$ — boshqaruv signali,

λ — boshqarish xarajati koeffitsienti.

Boshqaruv Algoritmllari

Optimal boshqaruvni amalga oshirish uchun turli xil algoritmlar qo'llaniladi, jumladan, PID (Proportional-Integral-Derivative) boshqaruv algoritmi. Ushbu algoritim vaqt bo'yicha tizimning javobini optimallashtiradi.

PID boshqaruv tenglamasi quyidagicha yoziladi:

$$u(t) = K_p e(t) + K_i \int_0^t e(\tau) d\tau + K_d \frac{de(t)}{dt}$$

Bu yerda:

K_p — proporsional koeffitsient,

K_i — integral koeffitsient,

K_d — differensial koeffitsient,

$e(t)$ — xatolik funksiyasi ($y_{\text{ref}}(t) - y(t)$).

Bu algoritim yordamida qozon agregatining ish holatini doimiy ravishda kuzatib borish va kerakli boshqaruv signallarini berish mumkin.

Dinamik Modellar Tahlili va Simulyatsiya

Simulyatsiya Usullari

Dinamik modellarning samaradorligini baholash va ularni tahlil qilish uchun simulyatsiya usullari keng qo'llaniladi. Matlab yoki Simulink kabi dasturiy vositalar qozon agregatining matematik modelini sinash uchun qulay platformalar hisoblanadi.

Simulyatsiya jarayonida qozon agregatining ish rejimlari har xil parametrlar bilan tahlil qilinadi. Misol uchun, kiruvchi yoqilg'i miqdorini o'zgartirish yoki chiqayotgan bug' bosimini kuzatib, energiya samaradorligi baholanadi.

Simulyatsiya Muhitlari

Simulyatsiyalarni amalga oshirish uchun ko'plab dasturiy vositalardan foydalaniladi. Eng mashhurlari quyidagilar:

Matlab/Simulink: Bu dasturlar texnik jarayonlarni modellashtirish va real vaqtli boshqaruv tizimlarini sinashda keng qo'llaniladi. Matlab qozon agregatlarining dinamik modellarini tahlil qilish uchun matematik tenglamalarni hisoblash imkonini beradi. Simulink esa bu modellarning vizual diagrammasini tuzib, real tizimlardagi ishlashini sinovdan o'tkazishga yordam beradi.

Modelica: Issiqlik almashinuvi va termodinamik jarayonlarni batafsil modellashtirish imkonini beruvchi yana bir kuchli platforma. Ushbu platforma termodinamika va energetik tizimlar uchun maxsus modellarni ishlab chiqish va sinovdan o'tkazish uchun moslashuvchanlik taqdim etadi.

ANSYS Fluent: Agar qozon agregatlaridagi suyuqliklar va gazlar oqimini aniq tahlil qilish zarur bo'lsa, ANSYS Fluent kabi hisoblash suyuqlik dinamikasi (CFD) vositalari qo'llaniladi. Bu dastur gazning issiqlik bilan bog'liq harakatini, bug' hosil bo'lishini va yoqilg'i yonishini aniq modellashtiradi.

Dinamik Tahlil Natijalari

Qozon agregatining dinamik modeliga asoslangan tahlil natijalari issiqlik samaradorligini oshirish va yo'qotishlarni kamaytirish yo'llarini ko'rsatadi. Shuningdek, simulyatsiya natijalari optimal boshqaruv strategiyalarini aniqlash uchun muhimdir.

Simulyatsiya Jarayoni

Simulyatsiya jarayonini bir nechta bosqichlarga bo'lish mumkin:

Dinamik Modelni Tuzish: Avvalo qozon agregatining barcha komponentlari, ya'ni yoqilg'i yonish jarayoni, issiqlik almashinuvi, bug' hosil bo'lish jarayonlari kabi jarayonlar matematik tenglamalar orqali ifodalanadi. Masalan, energiya balans tenglamalari yoki issiqlik o'tkazuvchanlik qonunlari asosida qozonning harorat o'zgarishi va bosimni aniqlash mumkin.

Parametrlarni O'rnatish: Simulyatsiya uchun asosiy parametrlar belgilanadi. Bu parametrlar ichiga kirish issiqlik quvvati, yoqilg'i sarfi, suv va bug' bosimi kiradi. Har bir parametr tizimning optimal ishlashiga qanday ta'sir qilishini aniqlash uchun eksperimentlar o'rnatiladi.

Boshqaruv Algoritmilarini Sinash: PID boshqaruv, zamonaviy adaptiv boshqaruv yoki sun'iy intellektga asoslangan boshqaruv algoritmlari kiritilib, ularning natijalari kuzatiladi. Masalan, qozon agregatining kiruvchi parametrlaridagi o'zgarishlarga qanchalik tez va samarali javob bera olish qobiliyati sinovdan o'tkaziladi.

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COMMON TYPES OF CYBERCRIME AND HOW TO PREVENT THOSE

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Abstract This article gives information on cybercrime as a global issue happening around the world. The author also investigates some methods of committing cybercrimes as well as providing possible measures to guard organisations and individuals to be victims.

Key words: cybercrime, fraud, repercussions, illegal act

Wondering about the various [Types of Cybercrime](#) in the current digital sphere? Cybercrime is becoming a progressively commonplace issue. The emergence of online banking, social media, and confidential data on the web has presented criminals with innumerable openings to take advantage of unsuspecting sufferers. Therefore, let us understand the types of cybercrime in detail to learn the ways to prevent them in the first place.

Cyber fraudulence, data theft, identity fraudulence, malware assaults, and phishing rip-offs are examples of how hackers can manipulate the internet for their gain. This blog post intends to meticulously examine several common kinds of cybercrime so that readers may better guard themselves against such dangers.

Cybercrime is a problem that has been blighting the digital realm for an extended period. As technology progresses, criminals' methods of committing cybercrimes also augment. The tag "[cybercrime](#)" can relate to an extensive range of illicit activities, from identity theft and deception to malicious assaults on computer networks. Individuals and organisations must be mindful of the varied types of cybercrimes so they can adopt measures to guard themselves against becoming victims.

It is mandatory for any organisation – businesses included – to be conscious that cybercrimes exist and recognise signs indicating their presence. One must take proper measures to protect against falling victim to them.

Phishing scams represent a type of cybercrime that has existed for roughly two decades yet remains an immense peril to individuals and organisations. Fundamentally, phishing is a form of social engineering in which someone strives to acquire confidential information such as usernames, passwords, bank details or credit card numbers by dispatching emails or text messages appearing genuine. Generally speaking, the motive behind this fraudulence tends towards either financial gain or malevolence.

Both individuals and organisations must be cognizant of how these scams operate to defend themselves from becoming casualties. One method offenders attempt phishing assaults is by developing emails that appear like authentic communications from trustworthy companies, for instance, banks, online distributors or social media websites. Spoofing of email addresses aims to deceive recipients into believing that a message came from an official source when it did not.

Some criminals rely on SMS messages instead of emails to steal personal information since many overlook mobile security, making them vulnerable targets.

The repercussions linked to succumbing to any phishing attempt can vary significantly. For instance – It ranges from mild discomfort to losing significant amounts of money due to identity theft or financial fraud if attackers manage to access confidential accounts belonging to victims illegally using stolen credentials attained during the scamming process itself.

Cybercrime is an issue that affects the entirety of the contemporary world, with malware attacks being a particularly destructive subset. Malware assaults occur when noxious software or coding infiltrates someone's computer system. These can range from mere nuisances such as dispatching spam emails to more serious invasions like stealing personal info and monetary data.

Malware is any programming intended to harm or disturb PCs and systems. It can get coded to accomplish practically anything, from observing client action on a gadget to taking delicate data from an account. Defending digital resources against these dangers is increasingly troublesome for people and associations as they frequently come in various structures like infections, worms, Trojans, spyware, ransomware and much more.

The ideal manner in which individuals and organisations can avoid potential malware attacks is by keeping devices up-to-date with the most recent security patches, using robust passwords, refraining from clicking on suspicious links, only

downloading applications from trusted sources, backing up essential data frequently, utilising anti-virus protection that offers real-time scanning capacities, encrypting sensitive files stored on networks or devices, enabling two-factor authentication wherever possible, screening user activity logs for any evidence of suspicious behaviour, if required putting firewalls around a specified network area, avoiding public Wi-Fi where practicable and promptly notifying suspected threats upon detection before further damage occurs.

White Hat or Ethical Hackers are cybersecurity experts who use their skills to identify and rectify systems, networks, and software vulnerabilities. Unlike malicious hackers, they operate with permission and a code of ethics, aiming to strengthen security and protect against cyber threats.

Their activities involve penetration testing, vulnerability assessments, and other ethical hacking techniques to safeguard digital assets. White Hat Hackers play a crucial role in maintaining the integrity and security of information systems, contributing to a safer online environment.

Gray Hat Hackers fall between the ethical White Hat Hackers and the malicious Black Hat Hackers. They engage in hacking activities without explicit permission, but their intentions are not always malevolent. Gray Hats may identify and exploit systems, networks, or software vulnerabilities to raise awareness about security weaknesses.

While their actions may be technically illegal, they often do so with the intent of helping businesses improve their security. However, the ethical ambiguity of their activities can lead to legal consequences. Gray Hat Hackers operate in a gray area, and their motives vary widely.

Script Kiddies, often called skiddies, are inexperienced individuals with limited hacking skills. They rely on pre-written scripts and tools created by more skilled hackers to carry out cyberattacks. Script Kiddies typically lack deep technical knowledge and understanding of hacking techniques.

They engage in hacking activities for fun, curiosity, or to impress others without fully comprehending the consequences. While their actions can still cause damage and security breaches, they are generally considered less sophisticated and less malicious than more experienced hackers, such as Black Hats or White Hats.

Blue Hat Hackers are individuals or groups not affiliated with any business but invited by a company to test their security systems and identify vulnerabilities. They are similar to White Hat Hackers in their ethical approach but differ since they are not permanent employees.

Blue Hats often provides independent assessments and insights, helping businesses strengthen cybersecurity defences. This term is not as commonly used

as White Hat or Black Hat Hackers but represents a specific role in ethical hacking within the cybersecurity industry.

The term “Red Hat Hackers” is not a well-established category within the realm of hacking. While “Red Hat” typically refers to a well-known Linux distribution company, it is not commonly associated with a specific type of hacker or hacking group.

In hacking terminology, the more known categories include White Hat, Black Hat, Gray Hat, and others. It is possible that the term “Red Hat Hackers” could be used informally or within a specific context, but it does not have a widely accepted definition or role in the cybersecurity field.

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MODERN CYBERATTACKS AND PROTECTIONS

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Abstract. *As cybercriminals adopt increasingly advanced techniques, modern cyberattacks have become more complex, frequent, and damaging. Organizations and individuals alike face threats such as ransomware, phishing, Distributed Denial of Service (DDoS) attacks, and Advanced Persistent Threats (APTs). These attacks target sensitive data and critical infrastructure, posing significant financial, operational, and reputational risks. This article explores common modern cyberattacks and outlines effective cybersecurity measures, including encryption, firewalls, multi-factor authentication, and employee training, to help mitigate the impact of these attacks and strengthen overall defenses.*

Keywords: *Modern cyberattacks, Cybersecurity, Ransomware, Phishing, DDoS, Advanced, Persistent Threats (APTs), Zero-day exploits, Encryption, Firewalls, Multi-factor authentication*

Introduction. With the increasing digitization of businesses and personal data, cyberattacks have evolved to become more sophisticated and damaging. Modern cyberattacks are no longer limited to simple breaches or viruses but now involve complex strategies that exploit vulnerabilities in networks, systems, and human behavior. Cybercriminals use a wide range of attack vectors, from ransomware and phishing to highly coordinated Advanced Persistent Threats (APTs), all aimed at compromising sensitive information or disrupting essential services. Given the rapidly evolving threat landscape, cybersecurity protections must keep pace. This article delves into the nature of modern cyberattacks and outlines essential protections that individuals and organizations can adopt to guard against them.

Ransomware Attacks. Ransomware has become one of the most prevalent and devastating forms of cyberattacks. In a ransomware attack, attackers infiltrate a system, encrypt files, and demand a ransom for decryption. The 2021 attack on Colonial Pipeline, which disrupted fuel supplies in the United States, highlighted the far-reaching consequences of ransomware. Ransomware can paralyze critical infrastructure, resulting in financial losses and operational disruption. Even if the ransom is paid, there is no guarantee that attackers will provide the decryption key.

Phishing remains one of the simplest yet most effective methods for stealing sensitive information. Cybercriminals use deceptive emails or messages to trick individuals into revealing passwords, credit card numbers, or other confidential

data. Phishing emails impersonating banks or popular online services continue to trick users into divulging login credentials. Phishing can lead to identity theft, unauthorized access to sensitive systems, and financial fraud.

Distributed Denial of Service (DDoS) Attacks. DDoS attacks overwhelm a network or server with excessive traffic, making services unavailable to legitimate users. The 2016 DDoS attack on Dyn, which disrupted major websites like Twitter, Netflix, and Reddit, demonstrated the widespread damage a single attack can cause. DDoS attacks can lead to downtime, financial loss, and reputational damage for businesses.

Advanced Persistent Threats (APTs). APTs are highly sophisticated, targeted attacks often carried out by nation-states or well-funded groups. These attacks aim to gain long-term access to a network, allowing cybercriminals to steal sensitive data or disrupt operations over an extended period. The 2020 SolarWinds attack, in which hackers compromised U.S. government agencies and corporations, is a prime example of an APT. APTs can result in massive data breaches, long-term espionage, or infrastructure disruption.

Zero-day exploits take advantage of vulnerabilities in software or hardware that are unknown to the developer. Cybercriminals use these weaknesses to launch attacks before a patch or fix is available. Zero-day exploits are particularly dangerous because there are no immediate defenses, leading to full system compromises and potential data loss.

Effective Cybersecurity Protections

Encryption is one of the most effective ways to protect data from unauthorized access. By converting data into an unreadable format, encryption ensures that even if cybercriminals gain access to a system, they cannot decipher sensitive information. Use end-to-end encryption for sensitive data transmissions, such as financial transactions or personal communications.

Firewalls act as a barrier between a network and potential threats. They monitor incoming and outgoing traffic based on security rules, blocking suspicious activities. Implement both hardware and software firewalls to protect the network perimeter and individual devices.

Multi-Factor Authentication (MFA), MFA provides an additional layer of security beyond just a password by requiring users to verify their identity using two or more methods (e.g., password + a mobile authentication code). Use MFA for all accounts, especially those with sensitive access privileges.

Employee Training and Awareness. Human error is often the weakest link in cybersecurity defenses. Regular training and awareness programs help employees recognize phishing attempts, understand security best practices, and follow

protocols to reduce risk. Conduct regular phishing simulation exercises and training sessions to ensure employees are prepared to detect and report suspicious activities.

Regular Software Updates and Patching. Outdated software is often the target of cyberattacks, as vulnerabilities are discovered and exploited by cybercriminals. Keeping systems and applications up to date reduces the risk of attack. Implement automated patch management to ensure all systems are regularly updated with the latest security patches.

Conclusion. As cybercriminals continue to refine their attack methods, modern cyberattacks pose an ever-growing threat to individuals, businesses, and governments. Ransomware, phishing, APTs, and zero-day exploits represent just a few of the most dangerous attacks that require attention and preparation. However, by adopting a multi-layered cybersecurity approach that includes encryption, firewalls, multi-factor authentication, and regular employee training, organizations can significantly reduce their risk. Staying vigilant and proactive is key to defending against the evolving cyber threat landscape.

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GROUPING AND PRIORITISING OF USERS TO IMPROVE REQUEST SERVICE PROCESS DURING REQUEST TRAFFIC CONGESTION ON REQUEST SYSTEM

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Abstract: *The focus of this work is to tackle the problem of user grouping in remote request service systems so that service provision can be organised in groups of users during times of request congestion. The paper includes an algorithm for categorising and implementing it at various stages of service. According to the developed algorithm, in a situation of traffic congestion, priority customers will continue to receive service, while non-priority users will have their access temporarily restricted.*

Keywords: *request servicing, prioritization, grouping of users*

Introduction. Remote request service is one of today's most used technologies. Remote request service is one form of service that requires continual speed and precision. Because any delay in responding to user requests would result in the user being denied service and leaving the system temporarily or permanently [2]. Nowadays, many services and work processes are organised using this technology, and the efficiency of the service process is increasing. This method uses information and communication technology as a service instrument, and it is organised centrally. Along with a significant reduction in service periods, there are several interruptions caused by the devices' limited technical capabilities. This situation has developed as a result of a significant increase in requests to service systems. This generates congestion in the system, reducing the system's ability to provide services. As a result, it is critical to adapt remote request service mechanisms to periods of request congestion.

Methods. One method of this type is provided in study [1], which focusses on grouping users to serve requests during peak hours. Grouping refers to the organisation of users into prioritised and non-priority groups. This approach proposes restricting service to specific groups during system congestion.

Results and discussion

This problem-solving method is part of the priority-based request service methods and produces good outcomes in terms of service time and request acceptance [3], [4], [5], and [6]. Priority request service does not require any additional gear or software. [1]. However, serving this approach necessitates categorising requests or users and modifying how they are delivered [7]. Typically, this procedure involves categorising requests or system users, and service delivery is organised around these groups.

Currently, priority service is FIFO (First In, First Out), LIFO (Last In, First Out), SIRO (Service in Random Order), Priority Queue, LRU (Least Recently Used), SJF (Shortest Job First), and approaches such as EDF (Earliest Deadline First) are extensively used in service delivery [8], [9], and [10].

The problem of grouping user requests is likewise addressed in the service model based on the priority of requests during the congestion times described in the research article [1]. In this situation, the grouping is based on user segmentation, which is determined by whether or not they use the system. This method is intended for systems with an identification process, in which users are assigned a priority label after passing through the system's identification procedure (Figure 1) [1], [11].

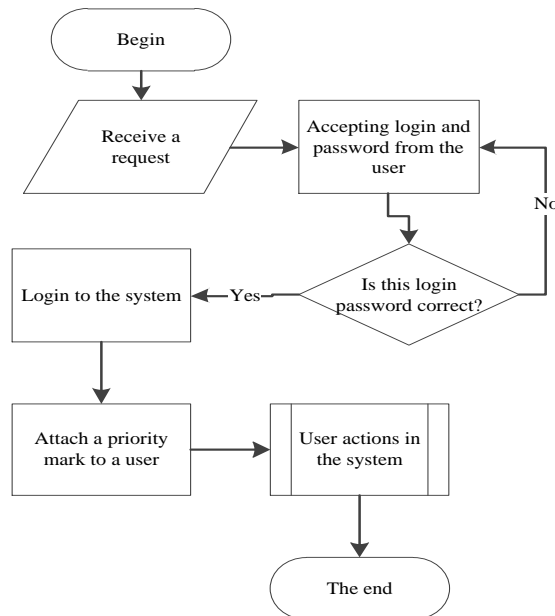


Figure 1. Algorithm for attaching a priority mark to users

This associated priority flag is set during the service's software phase. In addition, when the request result is sent to the user, it is included in the content of the head (HEADER) section of the response.

When there is no traffic in the system, requests granted priority in this sequence are served in the system's stated order. The service is often provided via the FIFO approach [1].

Users that follow the procedure shown in Figure 1 will only receive priority during peak hours. During login, a priority flag will be appended to all requests to and from the system made by priority group users. This study approach classifies requests into prioritised and non-priority user groups, in that order. Users with priority use it when the system is congested.

Conclusion. Grouping users in this view allows system to easily isolate them during peak request times. Simultaneously, the system software attachment of user priority and its verification by the system web server during traffic bottlenecks considerably reduces the stress on the system software and databases.

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KOMPYUTER TAMOQLARI VA TARMOQ XAVFSIZLIGI MUAMMOLARI.

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Annotatsiya: *Maqolada kompyuter tarmoqlari va tarmoq xavfsizligida muammolar va yechimlari keltirib o'tilgan.*

Kalit so'zlar: *Tarmoq, tarmoq topologiyalari, OSI modeli, TCP/IP modeli, tarmoq vositalari, zaiflik, tahdid, hujum, ichki tahdid, tashqi tahdid, razvedka hujumlari, kirish hujumlari, zararli hujumlar, xizmatdan voz kechishga undash (Denial of service, DOS) hujumlari.*

Kirish. Kompyuter tarmoqlari resurslarni almashish maqsadida bir necha kompyuterlarning birlashuvidan iborat. Fayllar, dasturlar, printerlar, modemlar va har qanday tarmoq uskunasi birgalikda foydalaniluvchi yoki taqsimlanuvchi resurslar bo'lishi mumkin. Kompyuterlarni birlashtirish uchun ma'lumotlarni uzatuvchi turli xil vositalardan foydalaniladi: aloqa kanallari, telekommunikatsiya vositalari, retranslyatorlar va h.

Mos tarmoq servislaridan foydalanish orqali turli xil tarmoq resurslarini taqdim etish vazifasi yuklatilgan tarmoq kompyuteri server deb ataladi. Tarmoq resurslaridan va turli tarmoq servislaridan foydalanish maqsadida serverga so'rov yuboruvchi tarmoq qurilmalari mijozlar deb ataladi. Avtonom ishlovchi yoki mijoz sifatida tarmoqqa ulangan kompyuterni, odatda, ishchi stansiyasi deb atashadi [1].

Kompyuter tarmoqlarini quyidagicha tasniflash mumkin:

- xududiy alomat bo'yicha;
- ma'murlash usuli bo'yicha;
- topologiya bo'yicha.

Adabiyot sharhi. Hududiy alomat bo'yicha lokal (LAN, Local Area Network) va global (WAN, Wide Area Network) hisoblash tarmoqlari farqlanadi.

Global hisoblash tarmog'i katta geografik muhitni qamrab olgan va tarkibida aloqaning magistral liniyalari yordamida birlashtirilgan ko'plab hisoblash tarmoqlari va masofadagi kompyuterlar bo'lgan hududiy taqsimlangan tizimdan iborat. Megapolis va region doirasida tashkil etilgan tarmoqlar mos holda shahar tarmog'i (MAN, Metropolitan Area Network) va shaxsiy tarmoq (PAN, Personal Area Network) deb yuritiladi [1]. Eng mashhur global tarmoq Internet TCP/IP protokollari steki bazasiga asoslangan megatarmoq hisoblanadi. Ba'zi adabiyotlarda "korporativ tarmoq" iborasi ishlatiladi. Bu ibora orqali turli texnik,

dasturiy va informatsion prinsiplarda qurilgan bir necha tarmoqlarning birlashmasi tushuniladi[2].

Megatarmoq Internet foydalanuvchilarini birlashtirish uchun ishlatiluvchi global tarmoq Ekstranet (extranet) deb yuritiladi. TCP/IP protokoli bazasida amalga oshirilgan, ammo megatarmoq Internetdan ajratilgan tarmoq Intranet (Intranet) deb ataladi.

“Mijoz-server” tarmoqlarida markazlashgan arxitektura hisobiga ma'murlash va masshtablash funksiyalarini, xavfsizlikni va tiklanishni ta'minlash osongina amalga oshiriladi. Ammo, bunday tarmoqlarning zaif joyi (barcha markazlashgan tizimlardagi kabi) server hisoblanadi. Serverning buzilishi butun tizimning ishdan chiqishiga olib keladi. Undan tashqari, “mijoz-server” tarmoqni qurish uchun serunum kompyuter va mos operatsion server muhiti talab etiladi. Mos holda, bunday tarmoqlar professional tarmoq ma'muriga ega bo'lishi shart [3].

Tarmoq topologiyasi bo'yicha umumiy shinali (bus), xalqasimon (ring), yulduzsimon (star), uyali (mesh) va aralash topologiyali tarmoqlar farqlanadi. “Umumiy shina” topologiyasi bitta chiziq bo'yicha yotqizilgan tarmoqdan iborat. Kabel bitta kompyuterdan keyingi kompyuterga, so'ngra undan keyingisiga o'tadi

Shinaning har bir uchida terminator (signalning akslanishini istisno qiluvchi) bo'lishi lozim. Shinaning bir uchi yerga ulanishi kerak. Shinali topologiya “passiv” hisoblanadi, chunki kompyuterlar signallarni regenerasiyalamaydi. Signal so'nishi muammosini hal etishda tarkorlagichlardan foydalaniladi. Shinaning uzilishi butun tarmoq ishlashining buzilishiga sabab bo'ladi (signalning akslanishi hisobiga).

Usullar “Xalqasimon” topologiyada har bir kompyuter boshqa ikkita kompyuter bilan ulangan va signal aylana bo'yicha o'tadi.

Xalqasimon topologiya “aktiv” hisoblanadi, chunki har bir kompyuter keyingi kompyuterga signal regeneratsiyalaydi. Topologiyaing kamchiligi sifatida masshtablashning murakkabligini hamda umumiy shina topologiyasidagidek uzilish sodir bo'lganida tarmoqning ishdan chiqishini va axborotning sust himoyalanganligini ko'rsatish mumkin.

“Yulduzsimon” topologiya har bir kompyuterni markaziy konsentrator bilan ulash orqali tashkil etiladi.

Ushbu topologiyaning afzalligi uzilishlarga barqarorligi (faqat bitta kompyuter uziladi), kompyuterlarni qo'shish imkoniyatining kamchiligi sifatida konsentratorga xarajatni ko'rsatish mumkin.

“Uyali” topologiyada har bir kompyuter boshqalari bilan ulangan. Shu tufayli ulanishlarning uzilishiga eng yuqori barqarorlikka erishiladi.

Topologiyaning kamchiligi sifatida kabelli ulanishlarga xarajatni ko'rsatish mumkin.

Tarmoqqa qo'yiladigan talablar:

ochiqlilik - tarmoqning mavjud komponentlarining texnik va dasturiy vositalarini o'zgartirmay qo'shimcha abonent kompyuterlarini hamda aloqa liniyalarini (kanallarini) kiritish imkoniyati; -

moslashuvchanlik - kompyuterni yoki aloqa liniyalarini ishdan chiqishi natijasida struktura o'zgarishining ishga layoqatlikka ta'sir etmasligi;

samaradorlik - kam sarf-xarajat evaziga foydalanuvchilarga xizmat qilishning talab etiladigan sifatini ta'minlash.

Natija va „Munozaralar. Axborot, Internet va kompyuter xavfsizligida aksariyat foydalanuvchilar tahdid, zaiflik va hujum tushunchalaridan tez-tez foydalanadilar. Biroq, aksariyat foydalanuvchilar tomonidan ularni almashtirish holatlari kuzatiladi.

Zaiflik - „portlaganida“ tizim xavfsizligini buzuvchi kutilmagan va oshkor bo'lmagan hodisalarga olib keluvchi kamchilik, loyihalashdagi yoki amalga oshirishdagi xatolik.

Taxdid (axborot xavfsizligiga taxdid) - axborot xavfsizligini buzuvchi bo'lishi mumkin bo'lgan yoki real mavjud xavfni tug'diruvchi sharoitlar va omillar majmui.

Hujum - bosqinchining operatsion muhitini boshqarishiga imkon beruvchi axborot tizimi xavfsizligining buzilishi.

Hozirda tarmoq orqali amalga oshiriluvchi masalalarning ortishiga quyidagi omillar sabab bo'lmoqda:

Qurilma yoki dasturiy vositaning noto'g'ri sozlanishi. Xavfsizlik bo'shliqlari, odatda, tarmoqdagi qurilma yoki dasturiy vositalarning noto'g'ri sozlangani bois vujudga keladi. Masalan, noto'g'ri sozlangan yoki shifrlash mavjud bo'lmagan protokoldan foydalanish tarmoq orqali yuboriluvchi maxfiy ma'lumotlarning oshkor bo'lishiga sababchi bo'lishi mumkin.

Foydalanuvchilarning e'tiborsizligi. Eng oxirgi tarmoq foydalanuvchilarining e'tiborsizligi tarmoq xavfsizligiga jiddiy ta'sir qilishi mumkin. Inson harakatlari natijasida ma'lumotlarning yo'qolishi, sirqib chiqishi kabi jiddiy xavfsizlik muammolari paydo bo'lishi mumkin.

Foydalanuvchilarni qasddan qilgan harakatlari. Xodim ishdan bo'shab ketgan bo'lsada, taqsimlangan diskdan foydalanish imkoniyatiga ega bo'lishi mumkin. U mazkur holda tashkilot maxfiy axborotini chiqib ketishiga sababchi bo'lishi mumkin. Bu holatga foydalanuvchilarning qasddan qilgan harakatlari sifatida qaraladi.

Tarmoq xavfsizligiga tahdid turlari. Tarmoqqa qaratilgan tahdidlar odatda ikki turga ajratiladi.

- ichki tahdidlar;
- tashqi tahdidlar.

Ichki tahdidlar. Kompyuter yoki Internetga aloqador jinoyatchiliklarning 80% ini ichki hujumlar tashkil etadi. Bu hujumlar tashkilot ichidan turib, xafa bo'lgan xodimlar yoki g'araz niyatli xodimlar tomonidan amalga oshirilishi mumkin. Ushbu hujumlarning aksariyati imtiyozga ega tarmoq foydalanuvchilari tomonidan amalga oshiriladi.

Tashqi tahdidlar. Tashqi hujumlar tarmoqda allaqachon mavjud bo'lgan zaiflik natijasida amalga oshiriladi. Hujumchi shunchaki qiziqishga, moddiy foyda yoki tashkilotni obro'sini tushirish uchun ushbu hujumlarni amalga oshirishi mumkin. Mazkur holda hujumchi yuqori malakali va guruh bo'lib hujumni amalga oshirishi mumkin.

Tizimlashmagan tashqi tahdidlar odatda malakali bo'lmagan shaxslar tomonidan turli tayyor buzish vositalari va skriptlar (senariylar) yordamida amalga oshiriladi. Ushbu hujum turlari odatda shaxs tomonidan o'z imkoniyatini testlash yoki tashkilotda zaiflik mavjudligini tekshirish uchun amalga oshiriladi.



5-rasm. Tarmoqqa qaratilgan turli tahdidlar

Tarmoqqa qaratilgan hujumlar sonini ortib borishi natijasida tashkilotlar o'z tarmoqlarida xavfsizlikni ta'minlashda qiyinchiliklarga duch kelishmoqda. Bundan tashqari, hujumchilarning yoki xakerlarning tarmoqqa kirishning yangidan - yangi usullaridan foydalanishlari, ular motivlarining turlichaligi bu murakkablikni yanada oshiradi. Tarmoq hujumlari odatda quyidagicha tasniflanadi.

Xulosa. Razvedka hujumlari asosiy hujumni oson amalga oshirish maqsadida tashkilot va tarmoq haqidagi axborotni to'playdi va bu hujumchilarga mavjud bo'lishi mumkin bo'lgan zaifliklarni aniqlash imkonini beradi.

Razvedka hujumining asosiy maqsadi quyidagi toifaga tegishli ma'lumotlarni yig'ish hisoblanadi:

- tarmoq haqidagi;
- tizim haqidagi;
- tashkilot haqidagi.

Razvedka hujumlarining quyidagi turlari mavjud:

Aktiv razvedka hujumlari. Aktiv razvedka hujumlari asosan portlarni va operaesion tizimni skanerlashni maqsad qiladi. Buning uchun, hujumchi maxsus dasturiy vositalardan foydalangan holda, turli paketlarni yuboradi. Masalan, maxsus dasturiy vosita router va 137 tarmoqlararo ekranga boruvchi barcha IP manzillarni to'plashga yordam beradi.

Passiv razvedka hujumlari. Passiv razvedka hujumlari trafik orqali axborotni to'plashga harakat qiladi. Buning uchun hujumchi sniffer deb nomlanuvchi dasturiy vositadan foydalanadi. Bundan tashqari, hujumchi ko'plab vositalardan foydalanishi mumkin.

Foydalanilgan adabiyotlar.

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СОВРЕМЕННЫЕ ПРОБЛЕМЫ КИБЕРБЕЗОПАСНОСТИ И ИХ РЕШЕНИЕ

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Аннотация: В современном цифровом мире кибербезопасность становится все более актуальной темой, в связи с ростом числа кибератак и утечек данных. В данной статье рассматриваются основные проблемы

кибербезопасности и предлагаются возможные решения для их преодоления.

Ключевые слова: *кибербезопасность, кибератаки, утечки данных, программное обеспечение, уязвимости, социальная инженерия, фишинг, пароли, аутентификация, резервное копирование данных.*

В современном цифровом мире, кибербезопасность становится все более актуальной и важной темой. С ростом числа кибератак и утечек данных, защита информации становится приоритетом для организаций и частных лиц. В данной статье будут рассмотрены некоторые из основных проблем кибербезопасности и предложены возможные решения для их преодоления.

Первая проблема, с которой мы сталкиваемся, - это уязвимость программного обеспечения. Многочисленные программные ошибки и уязвимости могут быть использованы злоумышленниками для получения несанкционированного доступа к системам и данным. Решением этой проблемы является проведение регулярных аудитов безопасности и обновление программного обеспечения с целью устранения уязвимостей. Также важно привлекать квалифицированных специалистов по кибербезопасности для поиска и устранения уязвимостей.

Вторая проблема – это социальная инженерия и фишинг. Злоумышленники используют манипуляцию и обман, чтобы получить доступ к конфиденциальной информации. Часто они отправляют фальшивые электронные письма или создают поддельные веб-сайты, чтобы получить личные данные пользователей. Решением этой проблемы является повышение осведомленности пользователей о таких атаках и обучение им навыкам распознавания фишинговых попыток. Также необходимо использовать надежные антивирусные программы и брандмауэры для защиты от вредоносного программного обеспечения.

Третья проблема – это слабые пароли и недостаточная аутентификация. Многие пользователи все еще используют простые пароли или используют один и тот же пароль для разных учетных записей. Это делает их уязвимыми для атаки злоумышленников. Решением этой проблемы является использование сложных паролей, состоящих из комбинации букв, цифр и специальных символов. Также рекомендуется включить двухфакторную аутентификацию, которая требует не только пароль, но и дополнительный код или подтверждение для входа в систему.

Четвертая проблема – это отсутствие резервного копирования данных. В случае кибератаки или сбоя системы, потеря данных может быть катастрофической для организации. Решением этой проблемы является

регулярное создание резервной копии всех важных данных и хранение их в надежном и защищенном месте. Также необходимо тестировать процедуры восстановления данных, чтобы убедиться в их эффективности.

В заключение, проблемы кибербезопасности являются серьезной угрозой в современном цифровом мире. Однако, с принятием соответствующих мер предосторожности и реализацией решений, описанных выше, можно значительно улучшить безопасность информации. Важно помнить, что безопасность – это непрерывный процесс, и необходимо постоянно обновлять и совершенствовать системы защиты, чтобы эффективно противостоять современным угрозам.

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KIBERXAVFSIZLIK MASALASINI YECHISHDA ZAMONAVIY KRIPTOGRAFIK ALGORITMLARNING O'RNI VA KELAJAGI

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Annotatsiya. Ushbu maqolada zamonaviy kiberxavfsizlik masalalarini hal qilishda kriptografik algoritmlarning o'rni va ahamiyati ko'rib chiqiladi. Asosiy e'tibor kriptografik texnologiyalar, shifrlash algoritmlari va ularning kiberxavfsizlikka ta'siriga qaratiladi. Zamonaviy algoritmlar, masalan, AES, RSA, ECC va kelajakdagi kvant kriptografik yondashuvlar tahlil qilinadi.

Kalit so'zlar: Kiberxavfsizlik, Kriptografik algoritmlar, AES, RSA, ECC, Kvant kriptografiyasi.

Kirish. Kiberxavfsizlik zamonaviy texnologik rivojlanish davrida asosiy muammolardan biriga aylangan. Turli sohalarda raqamli ma'lumotlar hajmi oshib

borishi bilan ularni himoya qilish dolzarb masalalardan biriga aylangan. Shifrlash va kriptografik algoritmlar ushbu muammoni hal qilishda muhim vosita sifatida ishlatiladi. Ushbu maqola zamonaviy kriptografik algoritmlarning kiberxavfsizlikka qo'shgan hissasi, ularning ishlash tamoyillari hamda kelajakdagi rivojlanish imkoniyatlarini o'rganadi.

Muammo bayoni: Shifrlash algoritmlarining kuchayishi va kiberhujum texnikalarining rivojlanishi kiberxavfsizlik strategiyalarini yanada kuchaytirishni talab qiladi. Kvant hisoblash texnologiyalarining yaqin kelajakda rivojlanishi zamonaviy shifrlash algoritmlarining zaiflashishiga olib kelishi mumkin.

Materiallar va uslublar. Ushbu maqolada kiberxavfsizlik sohasida qo'llanilayotgan zamonaviy kriptografik algoritmlar tahlil qilindi. AES (Advanced Encryption Standard), RSA (Rivest–Shamir–Adleman), va ECC (Elliptic Curve Cryptography) algoritmlarining ishlash tamoyillari ko'rib chiqilib, ularning xavfsizlikka ta'siri o'rganildi. Uslub sifatida tahlil qilingan algoritmlarning o'zaro taqqoslanishi, ularning zaif tomonlari va kelajakda kvant kompyuterlar tomonidan o'tkazilishi mumkin bo'lgan hujumlarga tayyorligi baholandi. Tadqiqotda ilmiy maqolalar, texnik hujjatlar, va xalqaro standartlar o'rganildi.

AES algoritmi: AES simmetrik shifrlash algoritmi bo'lib, 128, 192 yoki 256-bit uzunlikdagi kalitlar yordamida ma'lumotlarni shifrlaydi. Ushbu algoritm tezkorligi va mustahkamligi bilan keng tarqalgan bo'lib, ko'plab kiberxavfsizlik dasturlarida qo'llaniladi.

RSA algoritmi: RSA ochiq kalitli shifrlash algoritmi bo'lib, katta butun sonlar ustida ishlaydi. Ma'lumotlarni shifrlash va deshifrlashda samarali, ammo kvant kompyuterlari paydo bo'lishi bilan RSA zaiflashishi mumkin.

ECC algoritmi: ECC o'zining yuqori xavfsizlikka ega bo'lgan kichik kalit uzunligi bilan tanilgan. Bu algoritm kvant kompyuterlarga nisbatan nisbatan chidamli deb hisoblanadi.

Natijalar. Tadqiqot natijalari shuni ko'rsatdiki, zamonaviy kriptografik algoritmlar kiberxavfsizlikni ta'minlashda muhim rol o'ynaydi. AES algoritmi tez va ishonchli bo'lsa-da, RSA algoritmi kelajakdagi kvant kompyuterlarga qarshi zaif bo'lishi mumkin. ECC esa nisbatan xavfsiz bo'lib, kelajakda kvant texnologiyalari paydo bo'lishi bilan ko'proq e'tibor qozonishi kutilmoqda.

AES ning afzalliklari: Tez ishlashi va yuqori xavfsizligi bilan ko'p tarmoqli ilovalarda qo'llanilishi oson.

RSA ning zaif tomonlari: Kvant hisoblash texnologiyalari paydo bo'lganda RSA algoritmining zaifligi oshadi.

ECC ning kelajagi: ECC algoritmi kichik kalit uzunligi va yuqori xavfsizligi sababli kvant kompyuterlarga chidamli bo'lishi mumkin.

Munozara. Kriptografik algoritmlar hozirgi kunda kiberxavfsizlik masalalarini hal qilishda juda muhim rol o'ynaydi. Ammo texnologiyalar

rivojlanishi bilan ularning samaradorligi va mustahkamligi ham tekshirilishi kerak. Xususan, kvant kompyuterlari paydo bo'lishi bilan zamonaviy shifrlash algoritmlarining zaiflashishi mumkin.

Kvant hisoblash texnologiyalari kriptografiyaga tahdid soluvchi omil bo'lib, RSA kabi algoritmlar kelajakda muayyan xavf ostida qoladi. Shu sababli, ECC va post-kvant kriptografik algoritmlariga e'tibor qaratish lozim.

Shu bilan birga, AES kabi simmetrik algoritmlar hali ham ko'plab amaliy sohalarda samarali ishlashi bilan e'tiborni o'ziga jalb qiladi, lekin AES va boshqa shifrlash usullarining mustahkamligini saqlab qolish uchun qo'shimcha choralarga ehtiyoj bor.

Xulosa. Zamonaviy kriptografik algoritmlar kiberxavfsizlikni ta'minlashda hal qiluvchi rol o'ynaydi. AES, RSA va ECC kabi algoritmlar hozirda eng keng tarqalgan shifrlash vositalari hisoblanadi. Biroq kvant hisoblash texnologiyalarining rivojlanishi bilan kiberxavfsizlikning kelajagi yangi yondashuvlar va algoritmlarga ehtiyoj tug'diradi. Kelajakda post-kvant kriptografiyasi va ECC algoritmlariga e'tibor qaratish kiberxavfsizlikni ta'minlashning muhim yo'nalishlaridan biri bo'ladi.

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AXBOROT TAHDIDLARI: TURLARI VA ULARNING YOSHLARGA TA'SIRI

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Annotatsiya. *Maqolada raqamli jamiyatda yoshlar duch keladigan axborot tahdidlarining turlari ko'rib chiqiladi. Mavzuning dolzarbligi yangi imkoniyatlar va xavflar (Kiberbulling, dezinformatsiya, raqamli qurilmalarga qaramlik va ma'lumotlarning sizib chiqishi) ni ochadigan Internet texnologiyalari va ijtimoiy tarmoqlarning rivojlanib borayotganligi bilan bog'liq. Ularning yoshlarning ruhiy-jismoniy salomatligi va ijtimoiy munosabatlariga ta'siri tahlil qilinadi. Internetdan xavfsiz foydalanish uchun tanqidiy fikrlash muhimligi, xavfsizlik strategiyalari va raqamli savodxonlikka e'tibor qaratadi.*

Kalit so'zlar. *Axborot tahdidlari, raqamli savodxonlik, yoshlarni qo'llab-quvvatlash, tanqidiy fikrlash, ta'lim, shaxsiy ma'lumotlarni himoya qilish*

Kirish. Zamonaviy dunyoda axborot texnologiyalari, ayniqsa, internet va ijtimoiy tarmoqlardan faol foydalanadigan yoshlarning kundalik hayotining ajralmas qismiga aylandi. Raqamli resurslarning ortib borishi bilan axborot tahdidlari bilan bog'liq yangi muammolar paydo bo'ldi. Ushbu tahdidlar yoshlarning ruhiy va hissiy holatiga, ularning ijtimoiy munosabatlariga va umumiy hayot sifatiga sezilarli ta'sir ko'rsatishi mumkin.

Masalan, kiberbulling onlayn tajovuzning eng keng tarqalgan shakllaridan biri bo'lib, unda qurbonlar ta'qib qilinadi va tahqirlanadi. Bu hodisa jiddiy oqibatlariga, jumladan depressiya va hatto o'z joniga qasd qilish holatlariga olib kelishi mumkin. Bundan tashqari, yoshlar ko'pincha noto'g'ri ma'lumotlarning qurboni bo'lishadi: bu ularning haqiqatni idrok etishlariga to'sqinlik qilishi va va ularda jamiyat haqida noto'g'ri tasavvur yaratishi mumkin. Yana bir muhim muammo raqamli qurilmalarga qaramlikdir. Doimiy ravishda onlayn bo'lish konsentratsiyaning pasayishiga, yomon akademik ko'rsatkichlarga va ijtimoiy o'zaro munosabatlarning buzilishiga olib kelishi mumkin. Yoshlar ko'pincha virtual makondan tashqarida shaxsiy munosabatlarni o'rnatish qobiliyatini yo'qotadilar, bu esa o'z navbatida ularning hissiy farovonligiga ta'sir qiladi. Bundan tashqari, shaxsiy ma'lumotlarning tarqalishi ham jiddiy xavf hisoblanadi. Shaxsiy ma'lumotlarni noto'g'ri ishlatish moliyaviy yo'qotishlarga, shaxsni obro'sizlantririshga va hatto huquqiy oqibatlariga olib kelishi mumkin. Ta'kidlash joizki, ko'pchilik yoshlar internetdagi beparvo xatti-harakati qanchalik xavf tug'dirayotganini anglamaydilar.

Axborot tahdidlarining turlari va ularning yoshlar ongiga ta'siri

Axborot tahdidlari raqamli texnologiyalar va Internet makonidan foydalanish bilan bog'liq turli xil xavf-xatarlarni ifodalaydi. Keling, ushbu tahdidlarning asosiy turlarini va ularning yoshlarga ta'sirini ko'rib chiqaylik.

Kiberbulling. Bu bir yoki bir nechta foydalanuvchi boshqa shaxsni onlayn tarzda qasddan bezovta qiladigan, haqorat qiladigan yoki kamsitadigan bezorilik shaklidir. Avval aytib ta'kidlanganidek, kiberbulling jiddiy oqibatlariga, jumladan depressiya va hatto o'z joniga qasd qilish holatlariga olib kelishi mumkin. Kiberbulling qurboni bo'lgan yoshlar ko'pincha o'zlarini yolg'iz va umidsiz his qilishadi.

Dezinformatsiya foydalanuvchilarning fikri va xatti-harakatlariga ta'sir qilishi mumkin bo'lgan yolg'on yoki chalg'ituvchi ma'lumotlarni tarqatish bo'lib, noto'g'ri ma'lumotlarga duchor bo'lgan yoshlarda voqelikka noto'g'ri qarash

paydo bo'lishi mumkin. Bu ularning ijtimoiy, siyosiy va iqtisodiy masalalar bo'yicha fikrlariga salbiy ta'sir qilishi mumkin.

Raqamli qurilmalarga qaramlik - bu odamda raqamli qurilmalardan foydalanishga haddan tashqari ishtiyoq paydo bo'ladigan holat. Texnologiyaga qaramlik yomon akademik ko'rsatkichlarga, yomon ijtimoiy ko'nikmalarga va sog'liq bilan bog'liq muammolariga olib kelishi mumkin. Yoshlar shaxslararo munosabatlar va o'z-o'zini tashkil qilish qobiliyatini yo'qotishi mumkin.

Shaxsiy ma'lumotlarning sizib chiqishi, ya'ni konfidensiallikning buzilishi. Bu foydalanuvchining shaxsiy ma'lumotlari uning roziligisiz uchinchi shaxslarga ochiq bo'ladigan holat. Konfidensiallikning buzilishi moliyaviy yo'qotish, firibgarlikka duchor bo'lish va obro'sizlanish bilan bog'liq muammolarga olib kelishi mumkin. Shaxsiy ma'lumotlardan foydalanish bilan bog'liq xavflardan bexabar yoshlar kiberjinoyat qurboni bo'lishlari mumkin.

Ekstremizm va radikallashuv - vayronkor mafkuralarning Internet orqali targ'ibot qilish ko'rinishidagi ta'siridir.

Axborot tahdidlarining har xil turlarini va ularning yoshlarga ta'sirini tushunish xavfsiz raqamli muhitni yaratish uchun muhimdir. Raqamli savodxonlik va xabardorlikni oshirish strategiyalari yoshlarga o'zlarini ushbu tahdidlardan himoya qilish va tanqidiy fikrlashni rivojlantirishga yordam berish uchun zarur.

Axborot tahdidlariga qarshi kurashish bo'yicha tavsiyalar va usullar

Axborot tahdidlariga qarshi samarali kurashish uchun yoshlar va ularning atrofida bir qancha tavsiya va strategiyalardan foydalanishlari mumkin. Ushbu tahdidlarga qarshi kurashishning asosiy usullari:

- yoshlarni kuchli parollardan foydalanish va maxfiylik sozlamalarini o'rnatishga o'rgatish uchun seminarlar va treninglar o'tkazish;

- axborotni tahlil qilish ko'nikmalarini rivojlantirish, faktlarni nuqtai nazar va noto'g'ri ma'lumotlardan ajrata olish qobiliyatini shakllantirish;

- internetdagi muammolar haqida do'stlar va oila a'zolari bilan ochiq muloqot qilish muhimdir. Yoshlar doimo kattalardan yordam so'rashlari mumkinligini bilishlari kerak;

- yoshlar o'z tajribalarini muhokama qilishlari va yordam topishlari mumkin bo'lgan jamoalarni shakllantirish;

- yoshlar Internet bilan bog'liq muammolarni hal qilishda psixologlar yoki maslahatchilardan yordam so'rash muhimligini bilishlari kerak.

- faktlarni tasdiqlash uchun bir nechta manbalardan foydalanish va ishonchli manbadan ma'lumot izlash;

- yoshlar axborot tahdidlari haqida xabardorlikni oshirishga qaratilgan tadbirlarda ishtirok etishlari mumkin;

- internet xavfsizligi dasturlarini ishlab chiqish uchun maktablar va universitetlar bilan hamkorlik qilish.

Ushbu tavsiyalar yoshlarga raqamli texnologiyalardan foydalanishga yanada ongliroq yondashish va turli axborot tahdidlaridan himoyalanihga yordam beradi. Muhimi, yoshlar xavfsiz internet makonini yaratish jarayonining faol ishtirokchisiga aylanadi.

Xulosa. Texnologiyaning jadal rivojlanishi va internetning keng tarqalishi bilan axborot tahdidlari, ayniqsa, yoshlar uchun jiddiy muammoga aylanib bormoqda. Kiberbulling, noto'g'ri ma'lumotlar, raqamli qaramlilik va shaxsiy ma'lumotlarning buzilishi yoshlarning ruhiy salomatligi va ijtimoiy munosabatlariga jiddiy ta'sir ko'rsatishi mumkin. Biroq, bu tahdidlardan xabardor bo'lish va samarali mudofaa strategiyalarini amalga oshirish ularning ta'sirini sezilarli darajada kamaytirishi mumkin. Raqamli savodxonlikni oshirish, shaxsiy ma'lumotlarni himoya qilish, kiberbulling va noto'g'ri ma'lumotlarga qarshi faol kurashish, shuningdek, hamjamiyat va ta'lim muassasalari tomonidan qo'llab-quvvatlash xavfsiz va mas'uliyatli onlayn muhitni yaratishga yordam beradi. Natijada yoshlar xavf-xatarni anglabgina qolmay, ularni bartaraf etishda faol ishtirok etishi muhim. Kuchlarni birlashtirib, biz yoshlarning axborot tahdidlaridan qo'rqmasdan rivojlanishi, o'rganishi va muloqot qilishi mumkin bo'lgan makonni yaratishimiz mumkin. Ogohlikni oshirish bo'yicha tashabbus va dasturlarni qo'llab-quvvatlash yanada xavfsizroq raqamli kelajakni shakllantirish uchun kalit bo'ladi

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NEFT MAHSULOTLARINI EKSTRAKSIYALASH JARAYONINI MODELLASHTIRISH VA BOSHQARISH USULLARINI TAHLILI.

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Neft mahsulotlarini ekstraksiyalash jarayonini boshqarish sifatini oshirish uchun dastlab jarayonga ta'sir etuvchi asosiy faktorlarni, ularning o'zaro bog'liqligi va ta'sirini aniqlash zaruriyati tug'iladi. Shu nuqtai nazardan neft mahsulotlarini ekstraksiyalashda sodir bo'ladigan jarayonlar va ularning hususiyatlari

Tahlillar asosida shuni xulosa qilish mumkinki, jarayonning xususiyatlarini o'rganishda nafaqat unga ta'sir etuvchi tashqi omillar, balki jarayonning fizikaviy xususiyatlarini ham hisobga olish ishlab chiqiladigan matematik model aniqligini yana ham oshiradi. Ushbu omillarni hisobga olish asosida boshqarish sistemasini ishlab chiqish jarayoni texnologik reglamentga mos bo'lishini ta'minlash imkonini beradi. Yana shuni alohida ta'kidlash joizki, jarayonga ta'sir etuvchi omillar asosan tasodifanlik xususiyatiga ega bo'lib, ularning ta'sirini ham jarayonning matematik modelini qurishda inobatga olish muhim rol o'ynaydi.

Odatda texnologik ob'yektlarni boshqarishda boshqariluvchi jarayonlarning ma'lumotlarning noaniqligini hisobga olgan holda ularning matematik modellarini ishlab chiqish asosiy rol o'ynaydi. Sodir bo'ladigan barcha noaniqliklar faqatgina o'lchash yoki tajribaning xatoligi bilan bog'lanmagan, va jarayonning o'zigagina hosdir. Chunki ular jarayonning dinamik hossalarni xarakterlaydi. Ma'lumotlar to'liq bo'lmaganda yoki qisman va ziddiyatli ma'lumotlar turli hil noaniqliklarni keltirib chiqaradi. Real jarayonga mos keluvchi yuqori aniqlikdagi modellar murakkab ko'rinishga ega bo'lib, ular yuqori sifatli boshqarish qonuniyatlarini tanlash imkoniyatini bermaydi. Chunki ular ob'yektning hossalari mavjud noaniqliklar hamda ob'yekt faktorlarining o'zaro bog'liqligini to'liq hisobga olish imkoniga ega emas. Shuning uchun modelga noaniqlik elementining kiritilishi ularni boshqarish uchun foydalanishda qo'llaniladigan matematik modellarni yanada aniqroq qurishni talab etadi.

Hozirgi kunda ekstraksiya jarayonini matematik modellashtirish avtomatlashtirilgan boshqarish sistemalarini qurishga mo'ljallangan muhim ilmiy-texnik masalalardan biridir. Bunda ekstraktor kolonnasi chiqishidagi moyning konsentrasyon qiymatlarini hisoblash uchun kirish o'zgaruvchilarini tabiatini

matematik ravishda tahlil qilish zaruriyati tug'iladi. Tozalanmagan moy komponentlari ekstraktordagi massa bilan aralashishi asosida ekstraktorning to'liq xajmi bo'ylab moddalarning bir hil konsentrasyon tarkibini ta'minlash zarur ya'ni:

$$\frac{\partial C}{\partial t} = (C_{kup} - C) \frac{1}{\tau} - k_0 C,$$

bu yerda τ - dastlabki moddaning ekstraktorda bo'lish vaqti, k_0 - normal sharoitlarda kimyoviy reaksiya tezligining doimiysi, S_{kir} - ekstraktor kirishidagi modda konsentratsiyasi, S – ekstraktor chiqishidagi modda konsentratsiyasi.

Shuningdek ob'yektdagi jarayonlarning o'zaro aloqalarini hisobga olishning murakkabligi bilan ta'riflanadigan ekstraksiyalash jarayonini modellashtirish va uning asosida boshqarish murakkab masalalardan biri hisoblanadi. Bunda ekstraktorda sodir bo'layotgan asosiy kimyoviy jarayonlar, ularning tezliklari va hosil bo'layotgan moddalar konsentratsiyalarini inobatga olish zarurdir. Shuning bilan birga ekstraksiyalash jarayonidagi texnologik parametrlarni boshqarishda foydalaniladigan modelning absolyut aniqligi muhim ahamiyat kasb etmaydi balki, uning stabiligini yuqori sifatli ta'minlash algoritmlari asosida sintezlash masalasi mavjud bo'lishi lozim. Shuning uchun chiqish kattaligini nominal qiymatlarda (texnologik reglamentga mos ravishda) ushlab turish muhim ahamiyat kasb etadi. Bunda jarayonlarda sodir bo'ladigan noaniqliklarni hisobga olish muhim o'rin egallaydi. Shuning uchun ekstraksiyalash jarayonini tadqiq etish uchun sun'iy intellekt usullari tahlil qilib chiqilgan.

Dinamik ob'yektlarni boshqarish muammolariga tatbiq etilgan sun'iy intellekt usullarini tahlil qilish shuni ko'rsatdiki, ishlab chiqarish jarayonlarini boshqarish uchun zamonaviy sistemalarning qo'llanishi nafaqat o'ta zamonaviy usullardan foydalanishni, balki har xil usullardan biri doirasida samarali kombinatsiyani, shuningdek, ekspert sistemaning elementlaridan foydalanishni talab qiladi. Bu shuni anglatadiki, analitik va simulyasiya modellaridan tashkil topgan yagona axborot bazasini yaratish zarur.

Neyron tarmoqlari universal aproksimatorlar sifatida kuchli matematik modellashtirish vositalaridir. Ularning noravshan-mantiq bilan birikishi ishlab chiqilayotgan neyro-noravshan boshqarish sistemalariga qo'shimcha moslashuvchanlik va funktsionallik beradi.

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YUZ TASVIRIGA ASOSLANGAN BIOMETRIK AUTENTIFIKATSIYALASH

Saydirasulov Nozimjon Foziljon o'g'li

Toshkent axborot texnologiyalari universiteti Farg'ona filiali magistranti

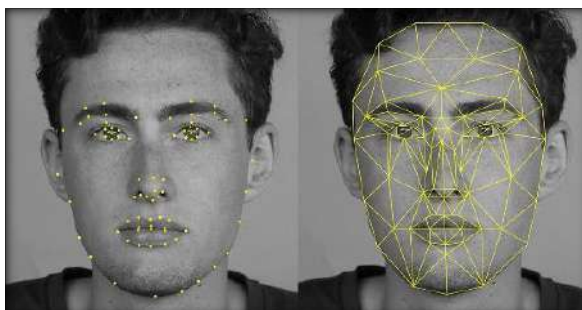
Annotatsiya: *Maqolada yuz tasviri orqali shaxslarni identifikatsiyalash bosqichlari, yuz tasviri orqali autentifikatsiyalashga qaratilgan hujumlar va bu hujumlarga qarshi qaratilgan himoya choralarini keltirib o'tilgan.*

Kalit so'zlar: *Identifikatsiya, autentifikatsiya, yuz tasviri, hujum.*

Kirish. Biometrik autentifikatsiya texnologiyalari, shaxsni tasdiqlashda insonning o'ziga xos biometrik xususiyatlaridan foydalanishni o'z ichiga oladi (1-rasm). Ushbu texnologiya maxfiylik va xavfsizlik talablarini ta'minlashda katta imkoniyatlar yaratadi. Biometrik autentifikatsiyalash texnologiyalaridan biri – bu yuz tasviriga asoslangan autentifikatsiya. Ushbu usul orqali foydalanuvchining yuz tuzilishi, uning yuzidagi noyob geometrik va tekstural xususiyatlarni tahlil qilib, shaxsni tasdiqlash amalga oshiriladi.

Yuz tasviriga asoslangan biometrik autentifikatsiyalashning maqsadi – foydalanuvchining kimligini aniq va xavfsiz aniqlash. Bunda autentifikatsiya qilishda parollar va kartalar kabi xavfsizlik usullari o'rniga, insonning yuz tuzilishidan foydalaniladi, bu esa xavfsizlikni oshirishda samarali hisoblanadi.

Asosiy qism. Yuzni tanish jarayoni quydagicha ishlaydi. Ko'pchilik iPhone-larni qulfdan chiqarish uchun ishlatiladigan FaceID orqali yuzni tanish texnologiyasi bilan tanish (ammo bu yuzni tanishning faqat bitta ilovasi). Odatda, yuzni tanib olish shaxsning shaxsini aniqlash uchun katta hajmdagi fotosuratlar bazasiga tayanmaydi - u shunchaki bir shaxsni qurilmaning yagona egasi sifatida belgilaydi va tan oladi, shu bilan birga boshqalarga kirishni cheklaydi.



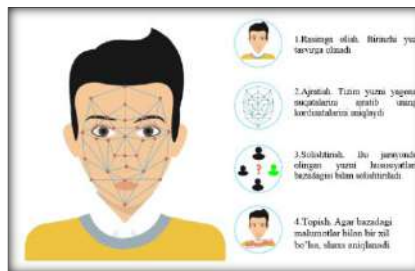
1-rasm. Yuz tasvirini tanib olish uchun ajratiladigan maxsus yuz xususiyatlari

1-qadam: Yuzni aniqlash. Kamera tasvir yoki video da aks etayotgan yuz tasvirlarini suratga tushiradi.

2-qadam: Yuz tahlili. Keyinchalik, yuzning tasviri olinadi va tahlil qilinadi. Yuzni tanish texnologiyasining aksariyati 3D tasvirlarga emas, balki 2D tasvirga tayanadi, chunki u 2D tasvirni ommaviy suratlar yoki ma'lumotlar bazasidagilar bilan qulayroq moslashtirishi mumkin. Dastur yuzingizning geometriyasini o'qiydi. Asosiy omillar orasida ko'zlar orasidagi masofa, ko'z bo'shlig'ining chuqurligi, peshonadan iyakgacha bo'lgan masofa, yonoq suyaklarining shakli, lablar, quloqlar va iyak konturi kiradi. Maqsad - yuzni farqlash uchun asosiy bo'lgan yuz belgilarini aniqlash(1-rasm).

3-qadam: Tasvirni ma'lumotlarga aylantirish. Yuzni suratga olish jarayoni analog ma'lumotni (yuzni) shaxsning yuz xususiyatlariga asoslangan raqamli ma'lumotlar to'plamiga aylantiradi. Inson yuzini tahlili asosan matematik formulaga aylanadi. Raqamli kod yuz izi deb ataladi. Bosh barmoq izlari o'ziga xos bo'lgani kabi, har bir insonning o'z yuz izi bor.

4-qadam: Moslikni topish. Keyin yuz izi boshqa taniqli yuzlar ma'lumotlar bazasi bilan taqqoslanadi.



2-rasm. Yuz tasvirini tanib olishning bosqichlari

Taqdimot hujumlari. Ushbu hujumlar tizimga fotosurat, niqob yoki hatto chuqur soxta video kabi soxta yuzni taqdim etishni o'z ichiga oladi. Bu yo'l bilan soxta tasvir orqali istalgan odam bema'lol soxta kirishni amalga oshirishi mumkin bo'ladi (3-rasm).



3-rasm. Yuzni tanib olishga qaratilgan taqdimot hujumi

Yuzni aniqlash tizimlariga hujumlarning oldini olishning bir necha usullari mavjud:

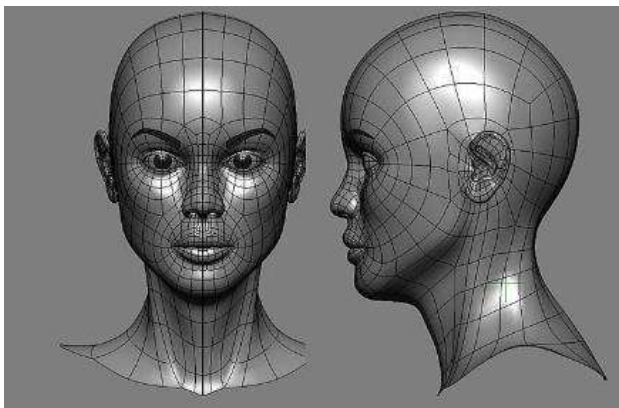
Jonlilikni aniqlash. Bu usul taqdim etilgan yuzning tirik odam ekanligini tekshiradi. Bu miltillovchi aniqlash, bosh harakati talablari yoki yuzdagi qon oqimini tahlil qilishni o'z ichiga olishi mumkin.

Chuqurlik sensorlari. Yuzni aniqlash tizimlari chuqurlik sensorlaridan yuzning 3D modelini yaratish uchun foydalanishi mumkin, bu esa tekis tasvir yoki niqob bilan aldashni qiyinlashtiradi. Yuz tasviri orqali autentifikatsiya jarayoniga qaratilgan hujumlardan biri shaxslarni o'z rasimlaridan foydalangan holda autentifikatsiya jarayonini aldab o'tishdir. Hozirda judayam ko'p tarqalgan yuzni identifikatsiya qiluvchi qurilmalar yuz tasirini 2D holatda o'qiydi va uni kordinatalari orqali yuzni tanib oladi. Shu sababi insonlar o'zi haqidagi ma'lumotlarini va yuz tasvirlarini turli xil ijtimoiy tarmoqlarga joylashi kiber etikaga umuman to'g'ri kelmaydi, chunki bu ma'lumotlar buzg'unchilar qo'liga tushib o'zlariga qarshi ishlatilishi mumkin.

Bu hujumga qarshi himoya chorasi sifatida bugungi kunda yuz tasvirni 3D holatda o'qiydagan texnologiyalar kengaymoqda. Bu esa buzg'unchilarga rasm orqali autentifikatsiya jarayonini aldab o'tishlariga imkon bermaydi, sababi bu texnologiya shaxslarni yuzini 3D ko'rinishda suratga oladi va unga ishlov beradi(4-rasm).

Cheklangan ma'lumotlarni saqlash. Saqlangan yuzni tanish ma'lumotlari miqdorini minimallashtirish va aniq ma'lumotlarni saqlash siyosatini o'rnatish, buzilishning mumkin bo'lgan ta'sirini kamaytirishi mumkin.

Ko'p faktorli autentifikatsiya. PIN yoki xavfsizlik tokeni kabi identifikatsiya qilish uchun bir nechta omillarni talab qilish, tajovuzkorlar kimnidir aldab, yuz ma'lumotlaridan voz kechishsa ham kirishni qiyinlashtiradi.



4-rasm. 3D ga asoslangan yuzni tanib olish jarayoni

Xulosa. Biz yuz orqali autentifikatsiya qilish jarayonlarni ko'rib chiqdik, va ularga bo'ladigan hujumlarni o'rganib, bu hujumlarga qarshi himoyalani choralarni keltirib o'tdik.

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РАЗРАБОТКА МЕТОДОВ РЕПРЕЗЕНТАТИВНОГО РАЗДЕЛЕНИЯ ПСЕВДООБЪЕКТОВ

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Аннотация. Построение репрезентативных признаков играет важную роль в задачах машинного обучения и анализа данных. Признаки определяют, насколько эффективно модель может распознавать закономерности в новых данных и делать прогнозы. В современных условиях большие данные требуют автоматизации и оптимизации процесса построения признаков, поэтому исследователи разрабатывают и применяют различные методы извлечения, выбора и генерации признаков.

Ключевые слова: репрезентативных признаков, псевдообъектов, спектр признаков

Разработка признаков — это классический подход, при котором исследователи вручную создают новые признаки или преобразуют существующие признаки на основе знаний о домене. Преобразование признаков включает создание новых переменных на основе логарифмов, степеней или комбинаций исходных данных.

Например, преобразование признаков путем создания полиномиальных комбинаций:

$$f(x_1, x_2) = a_1x_1 + a_2x_2 + a_3x_1^2 + a_4x_2^2 + a_5x_1x_2$$

где x_1, x_2 — исходные признаки, a_1, a_2, a_3, a_4, a_5 — коэффициенты.

Разработка признаков также включает следующие методы

Нормализация и стандартизация данных.

Биннинг (классификация числовых признаков).

Выбор новых признаков на основе знаний о домене или выявленных зависимостей.

Выбор признаков играет важную роль в уменьшении размерности данных и улучшении производительности модели. Этот процесс может быть

основан на статистических критериях, важности признаков или их кросс-корреляции.

Один из способов - использовать информационную энтропию. Чтобы рассчитать важность признака, используйте следующую формулу.:

$$I(T, X_i) = H(T) - H(T|X_i)$$

где $H(T)$ – энтропия целевой переменной, а $H(T|X_i)$ – условная энтропия целевой переменной с учётом признака X_i .

Современные алгоритмы машинного обучения и глубокого обучения автоматизируют процесс извлечения признаков. Такие методы, как автокодировщики и глубокие нейронные сети, обучают представления, которые непосредственно кодируют информацию, необходимую для решения задачи. Эти подходы могут находить сложные зависимости в данных без явного вмешательства.

В примере с авто кодировщиком минимизируется следующая функция ошибки:

$$L(x, x') = ||x - x'||^2,$$

где x – исходные данные, а x' – реконструированные данные после сжатия через латентное пространство.

Нейронные сети, особенно их глубокие версии, могут автоматически извлекать признаки на разных уровнях абстракции. В случае задач распознавания образов сверточные нейронные сети (CNN) извлекают широкий спектр признаков, от низкоуровневых (края, текстуры) до высокоуровневых (форма объекта).

Пример сверточной нейронной сети может быть описан следующим сверточным преобразованием:

$$f(X) = W * X + b,$$

где X – входное изображение, W – сверточные фильтры, b – смещение, а $*$ – операция свёртки.

Этот подход позволяет значительно улучшить производительность моделей, особенно на сложных данных, таких как изображения и текст.

Заключение

Построение репрезентативных признаков является важным этапом в задачах машинного обучения и играет ключевую роль в повышении точности и производительности моделей. Инженерия признаков, методы выбора признаков и глубокое обучение являются ключевыми областями для автоматизации и оптимизации этого процесса. В зависимости от характера данных и задачи выбор подхода к построению признаков сильно

варьируется, но в современных условиях для достижения наилучших результатов часто используется комбинация методов.

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THE ROLE OF EDUCATIONAL INSTITUTIONS IN PROTECTING STUDENTS FROM INFORMATION THREATS

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Abstract. In the context of rapid development of information technologies, educational institutions play a key role in protecting students from information threats. The article analyzes the main types of threats that students face, including cyberbullying, phishing and the spread of disinformation. Particular attention is paid to prevention methods that can be introduced into the educational process: educational programs on digital security, training in recognizing manipulation and creating a safe online environment. Examples of successful initiatives in various educational institutions aimed at developing students' critical thinking and safe behavior skills online are also considered. In conclusion, the importance of cooperation between educational institutions, parents and government agencies is emphasized to create a comprehensive system for protecting young people from information risks.

Keywords: digital security, cyberbullying, educational institutions, information threats

Introduction. With the development of digital technologies, information threats are becoming increasingly relevant for young people. Students who actively use the Internet and mobile devices are exposed to various risks, such as cyberbullying, phishing, and the spread of false information. In this regard, educational institutions play a critical role in developing students' skills for safe behavior online and understanding potential threats. They can not only provide knowledge about digital security, but also create a supportive environment that promotes an open discussion about risks and ways to prevent them. In this article, we will look at specific initiatives and programs implemented in educational institutions, and analyze how cooperation between educational institutions, parents, and government agencies can strengthen the protection of students in the digital space. Every year, the number of information threats faced by students increases. This is due not only to the increase in time spent online, but also to the variety of forms these threats take. In response to these challenges, educational institutions are beginning to develop and implement programs aimed at protecting students and developing their skills for safe behavior in the digital space.

Initiatives and programs in educational institutions.

Many educational institutions are introducing special courses dedicated to digital safety. These courses cover topics such as cyberbullying, personal data protection, and principles of safe communication online. For example, some universities offer elective classes where students learn to recognize phishing and other types of fraud.

Regular trainings and seminars held for both students and teachers are becoming an important tool for raising awareness of risks. Such events discuss real-life examples of incidents and offer strategies for behavior in difficult situations. For example, some schools hold seminars with cybersecurity experts who share practical tips on how to protect personal information.

Educational institutions are actively working to create a safe online environment. This includes the use of filters and software to protect against inappropriate content, as well as the development of anonymous reporting systems for cases of cyberbullying. Some colleges are introducing special platforms where students can report problems without fear of being identified. Many educational institutions are beginning to partner with external organizations, such as NGOs and cybersecurity companies. These partnerships provide students with access to up-to-date resources and information on emerging threats. For example, some universities partner with local law enforcement agencies to conduct joint events to increase student awareness.

Collaboration between different stakeholders in the educational process is key to keeping students safe in the digital space. Parents play an important role in shaping safe online behavior in their children. Educational institutions can organize parent-teacher conferences to discuss cybersecurity issues and methods of protecting themselves from information threats. This may include training parents on how to recognize potential threats and how to maintain an open dialogue with their children about online safety.

Government agencies can also play an active role in improving student safety. Creating national digital safety programs that include training for both students and teachers can greatly increase overall awareness. Examples of such programs include creating online resources and hotlines to help in the event of an incident. Strong collaboration between different educational institutions can lead to the creation of comprehensive programs that cover different levels of education, from primary schools to universities. This will create uniform standards and approaches to teaching digital security, which is important for the formation of a unified protection space.

In the context of growing information threats, educational institutions play a crucial role in protecting students. Implementing digital security programs, trainings, and creating a safe online environment are just some of the steps that can be taken to improve the level of protection. Cooperation with parents and government agencies enhances the effect of these measures, creating a comprehensive system that can effectively counter threats. It is important to continue to develop these initiatives and look for new approaches to ensure the safety of students in a rapidly changing digital world.

The issue of protecting students from information threats requires a comprehensive approach and active participation of all stakeholders. Today, many educational institutions are already taking steps to improve the level of digital security, but not all of them have sufficient resources and knowledge to implement effective programs. The problem is compounded by the fact that threats are constantly evolving, with new forms of cyberbullying, fraud, and disinformation emerging almost daily. There is also a need to raise awareness not only among students, but also among teachers and parents. They often lack the necessary information about modern threats and methods of protection. Therefore, it is important that educational programs are aimed at all groups of participants in the educational process.

Recommendations

Based on the above, we have made several recommendations.

- Educational institutions should develop a unified curriculum covering all levels of education. This will create a consistent approach to teaching students the basics of digital security, starting from primary school to higher education institutions.

- It is important to organize regular trainings for teachers and parents, where they can learn about modern threats and methods of preventing them. This will not only increase their awareness, but also create a more supportive environment for students.

- Educational institutions can create online platforms where students, parents and teachers can share experiences, report potential threats and receive tips on how to prevent them. This will create a community that can quickly respond to emerging issues.

- Educational institutions should actively collaborate with local and national authorities to implement joint initiatives to improve digital security. This may include joint events, training programs and resources available to all participants in the educational process.

- Creating a system for anonymous reporting of cyberbullying or other threats will help students feel more secure and confident that they can seek help.

- It is important to regularly evaluate the effectiveness of the implemented digital safety programs and initiatives. This will allow you to make changes and adapt to new challenges, ensuring that approaches are relevant and effective.

Conclusion. Protecting students from information threats requires the joint efforts of all participants in the educational process. Implementing the proposed recommendations will help create a safer and more supportive educational environment in which students can develop and learn without fear of threats in the digital space.

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РЕШЕНИЯ ПРОБЛЕМ БЕЗОПАСНОСТИ КОРПОРАТИВНЫМ СЕТЯМ ПРОГРАММНЫМИ ЗАКЛАДКАМИ

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Annotation. В этой статье изучены проблемы безопасности корпоративным сетям и решения их с помощью программными закладками. Рассмотрены стадии атаки на корпоративную сеть и Общая классификация типов угроз, которым подвергается компьютерная сеть. Приведен Жизненный цикл программной закладки и схема функционирования программной закладки

Keywords: корпоративная сеть, атака, прикладном программном обеспечении, программные закладки

Introduction. Вопросы сетевой безопасности и раннего обнаружения атак с каждым днём становятся всё более и более насущными как для частных пользователей, корпоративных сетей, так и для средних и крупных операторов связи. Сетевые атаки последнее время приобретают массовый характер. Известны случаи вывода из строя крупных всемирных порталов, банков, оборонных ведомств. Прежде чем начать разговор о способах выявления атак, определим, что же она собой представляет. Итак, атака - это совокупность действий злоумышленника, приводящих к нарушению информационной безопасности компьютерной сети (КС). Результатом успешно реализованной атаки может стать, например, несанкционированный доступ нарушителя к информации, хранящейся в КС, потеря работоспособности системы или искажение содержимого (данных) КС.

Method and Materials. В качестве потенциальных целей могут рассматриваться серверы, рабочие станции пользователей или коммуникационное оборудование сети. В общем случае любая атака может быть разделена на четыре стадии, как показано на рисунок 1 [2].



Рисунок 1. Жизненный цикл типовой атаки

Рекогносцировка. На этом этапе нарушитель старается получить как можно больше информации об объекте атаки, чтобы на её основе спланировать дальнейшие этапы вторжения. Примерами такой информации являются: тип и версия операционной системы, установленной на хостах информационной системы (ИС), список пользователей, зарегистрированных в системе, сведения об используемом прикладном программном обеспечении (ПО) и др.

Вторжение. На этом этапе нарушитель получает несанкционированный доступ к ресурсам тех хостов, на которые совершается атака.

Атакующее воздействие. На данной стадии реализуются те цели, ради которых и предпринималась атака. Например, нарушение работоспособности ИС, кража конфиденциальной информации, хранимой в системе, удаление или модификация данных и др. При этом атакующий часто выполняет операции, направленные на удаление следов его присутствия в ИС.

Развитие атаки. Когда злоумышленник стремится расширить объекты атаки, чтобы продолжить несанкционированные действия на других составляющих ИС.

Общая классификация типов угроз, которым подвергается компьютерная сеть, приведена на рисунок 2. Классификация произведена по степени риска, т.е. объёму наносимого ущерба в случае успешной реализации атаки как на информацию, защищаемую в сети, так и, собственно на саму сеть.



Рисунок 2. Классификация видов угроз безопасности функционирования корпоративных сетей

Results. В процессе передачи или хранения данных в корпоративной сети актуальным становится вопрос защиты информационных массивов, баз данных и программных средств от различных воздействий.

Для защиты от несанкционированного доступа к информации во время её передачи и хранения используются криптографические методы и, соответственно, средства (программные или аппаратные) для их реализации. Для поддержания целостности и авторизации сообщений в электронном виде - системы цифровой аутентификации (цифровая подпись).

Кроме того, при работе этих средств защиты необходимо обеспечить потенциальное невмешательства присутствующих прикладных или системных программ в процесс обработки информации средствами защиты.

Программная закладка - это компьютерная программа, которая обладает хотя бы одним из трёх перечисленных ниже свойств [3]:

- внесение произвольного искажения в коды других программ, находящихся в оперативной памяти компьютера (программная закладка первого типа);

- перенос фрагментов информации из одних областей оперативной или внешней памяти компьютера в другие (программная закладка второго типа);

- произвольного искажения выводимой на внешние компьютерные устройства или в канал связи информации, полученной в результате работы других программ (программная закладка третьего типа).

Программные закладки можно также классифицировать по методу их внедрения в компьютерную систему [1]:

- программно-аппаратные закладки, ассоциированные с аппаратной средой компьютера (их средой обитания, как правило, является BIOS - набор программ, записанных в виде машинного кода в постоянном запоминающем устройстве - ПЗУ);

- загрузочные закладки, ассоциированные с программами первичной загрузки, которые располагаются в загрузочных секторах (загрузочными являются несколько секторов диска, из которых в процессе выполнения начальной загрузки компьютер считывает программу, берущую на себя управление с целью последующей загрузки операционной системы);

- драйверные закладки, ассоциированные с драйверами (компьютерными файлами, в которых содержится информация, необходимая операционной системе для управления подключенными к компьютеру периферийными устройствами);

- прикладные закладки, ассоциированные с прикладным программным обеспечением общего назначения (текстовые редакторы, утилиты, антивирусные мониторы и программные оболочки);

- исполняемые закладки, ассоциированные с исполняемыми программными модулями, содержащими код этой закладки (чаще всего эти

модули представляют собой пакетные файлы, которые состоят из команд операционной системы, выполняемые друг за другом, как если бы их набирали с клавиатуры компьютера);

– закладки-имитаторы, интерфейс которых совпадает с интерфейсом некоторых служебных программ, требующих ввода конфиденциальной информации (паролей, криптографических ключей, номеров кредитных карточек);

У всех без исключения программных закладок, независимо от метода их внедрения в компьютерную систему, срока пребывания в оперативной памяти и выполняемых действий, есть одна важная общая черта: в программных закладках обязательно присутствует операция записи в оперативную или внешнюю память компьютерной системы. Без этой операции никакое негативное влияние программной закладки на компьютерную систему невозможно.



Рисунок 3. Жизненный цикл программной закладки

Жизненный цикл программной закладки выглядит следующим образом (рисунок 3). Обобщённо функционирование уже внедренной программной закладки можно представить в виде схемы, приведенной на рисунок 4.



Рисунок 4. Схема функционирования программной закладки

Discuss and Conclusion

Все угрозы ресурсам корпоративной сети могут быть классифицированы по степени риска на следующие: отказ в обслуживании, попытка несанкционированного доступа, предварительное зондирование, “подозрительная” сетевая активность. Перечисленные классы угроз упорядочены по убыванию степени риска.

При рассмотрении воздействия закладки и программ защиты информации уместны аналогии с взаимодействием вируса и прикладной программы.

Вирус может присоединиться к исполняемому файлу, соответствующим образом изменив его, может уничтожить некоторые файлы или встроиться в цепочку драйверов.

Закладка отличается более направленным и тонким воздействием. И вирус, и закладка должны скрывать свое присутствие в операционной среде компьютерной системы. Особенностью закладок может быть и то, что они фактически становятся неотделимы от прикладных или системных программ, если внедрены в них на стадии разработки или путём обратного проектирования (путём дисассемблирования прикладной программы, внедрения кода закладки и последующей компиляции).

Структурно программная закладка состоит из четырех основных функциональных блоков: исследование, активизация, проявление деструктивных действий (разрушения) и маскировка.

Методы защиты от закладок основаны на семантическом анализе программного обеспечения - носителя закладки.

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AXBOROT TEXNOLOGIYALARI, SUN'IY INTELLEKT VA KIBER XAVFSIZLIK SOHALARIDAGI DOLZARB MUAMMOLAR.

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Annotatsiya. Ushbu maqolamda axborot texnologiyalari, sun'iy intellekt va kiber xavfsizlik sohalaridagi dolzarb muammolar tahlili hamda axborot texnologiyalari bilan bog'liq ma'lumotlarni himoya qilish va ularning xavfsizligini ta'minlash muammolari, shuningdek, sun'iy intellekt tizimlarining etik jihatlari, kiber xavfsizlikdagi tahdidlar ko'rib chiqilgan. Dolzarb muammolarni hal etish uchun kompleks yondashuvlar va strategiyalar taklif etilgan, shuningdek bu sohalar bir-biri bilan chambarchas bog'liq bo'lib, ularning birgalikda rivojlanishi zamonaviy jamiyatda muhim ahamiyatga ega ekanligi e'tirof etilgan.

Kalit So'zlar: *Axborot texnologiyalari (AT), Sun'iy intellekt (SI), Kiber xavfsizlik, Ma'lumotlarni himoya qilish, Kiber jinoyatchilik, Etik muammolar, Texnologik yangiliklar, Foydalanuvchi xavfsizligi, Regulyatsiya, Katta ma'lumotlar*

Axborot texnologiyalari (AT) va sun'iy intellekt (SI) hozirgi kunda hayotimizning ajralmas qismiga aylangan. Ular bizning ishimizdan tortib, kundalik hayotimizgacha ko'plab sohalarda qo'llaniladi. Biroq, bu sohalar rivojlanishi bilan birga kiber xavfsizlik muammolari ham kengayib bormoqda. Ushbu maqolada axborot texnologiyalari, sun'iy intellekt va kiber xavfsizlik sohalaridagi dolzarb muammolar. Axborot texnologiyalari (AT), sun'iy intellekt (SI) va kiber xavfsizlik bugungi kunda jamiyatimizning barcha jabhalariga ta'sir ko'rsatmoqda. Ushbu texnologiyalarning tez rivojlanishi bir qator ijobiy natijalarga olib kelgan bo'lsa-da, ular bilan bog'liq muammolar ham mavjud. Ushbu maqolada AT, SI va kiber xavfsizlik sohalaridagi dolzarb muammolarni tahlil qilamiz.

Axborot Texnologiyalari

Axborot texnologiyalari sohasida muammolar ko'pincha ma'lumotlarni himoya qilish va ularning xavfsizligini ta'minlash bilan bog'liq. Katta ma'lumotlar (big data) va bulutli texnologiyalar (cloud computing) yordamida tashkilotlar katta hajmdagi ma'lumotlarni to'playdi, lekin bu ma'lumotlarni saqlash va ularga kirishni nazorat qilish masalalari dolzarb hisoblanadi.

Ma'lumotlarni himoya qilish: Shaxsiy va moliyaviy ma'lumotlarning o'g'irlanishi, ma'lumotlar bazalariga kirish va ularni manipulyatsiya qilish tahdidi mavjud.

Texnologik yangiliklar: Yangiliklarni tezda joriy etish bilan bog'liq muammolar, mavjud infratuzilma va texnologik taraqqiyotga qarab, ko'plab tashkilotlar uchun qiyinchilik tug'diradi.

Sun'iy intellekt sohasida dolzarb muammolar uning etikasi va natijalari bilan bog'liqdir. SI tizimlari inson qarorlariga ta'sir ko'rsatishi, ish joylarining yo'qolishiga olib kelishi yoki tengsizlikni kuchaytirishi mumkin.

Etik muammolar: SI tizimlarining ishlashi ko'plab etik savollarni keltirib chiqaradi, masalan, qaror qabul qilish jarayonida shaffoflik va adolat masalalari.

Ishsizlik: SI texnologiyalarining rivojlanishi ba'zi kasblarning yo'qolishiga olib kelishi, bu esa ijtimoiy-iqtisodiy muammolarni keltirib chiqarishi mumkin. Kiber xavfsizlik sohasidagi muammolar AT va SI bilan bog'liq bo'lib, bu sohada zamonaviy tahdidlar har doim o'zgarib turadi. Hujumlar va zaifliklar tashkilotlarning faoliyatini to'xtatishi mumkin.

Hujumlar va kiber jinoyatchilik: Kiber jinoyatchilar tomonidan amalga oshiriladigan hujumlar, jumladan, phishing, ransomware va DDoS hujumlari, muhim infrastrukturaga katta zarar yetkazishi mumkin.

Zaifliklarni bartaraf etish: Texnologiyalar doimiy ravishda yangilanib turishi kerak, lekin ko'plab tashkilotlar uchun xavfsizlikni ta'minlashda yetarli resurslar yo'q. Kichik va o'rta bizneslar uchun zarur kiber xavfsizlik vositalarini sotib olish va ularni amalga oshirish qiyin bo'lishi mumkin. Ko'plab tashkilotlar uchun kiber xavfsizlikni ta'minlashda moliyaviy resurslar yetishmaydi. Sun'iy Intellekt va Kiber Xavfsizlikda Uchraydigan Muammolarni Bartaraf Etish Usullari. Sun'iy intellekt (SI) va kiber xavfsizlik sohalari bir-biri bilan bog'liq va ularning o'zaro ta'siri yangi muammolarni keltirib chiqarishi mumkin. Ushbu maqolada SI va kiber xavfsizlikda uchraydigan muammolar va ularni bartaraf etish usullari tahlil qilinadi.

Sun'iy Intellekt va Kiber Xavfsizlik Muammolari. Tahdidlarning O'sishi SI texnologiyalari kiber jinoyatchilar tomonidan hujumlar uchun qo'llanilishi mumkin. Ma'lumotlarni O'g'irlash SI modellarini o'qitish uchun kerak bo'lgan ma'lumotlar o'g'irlanishi yoki manipulyatsiya qilinishi mumkin. Etik Muammolar SI tizimlarining qaror qabul qilish jarayonida shaffoflikning yo'qligi. Ishsizlik SI tizimlarining avtomatizatsiyasi ba'zi kasblarning yo'qolishiga olib kelishi.

1. Tahdidlarga Qarshi Yondashuvlar. Yuqori darajadagi xavfsizlik protokollari: SI tizimlari uchun kuchli xavfsizlik chora-tadbirlari, jumladan, kriptografiya va autentifikatsiya mexanizmlari joriy etilishi kerak.

Real vaqtda monitoring: Kiber tahdidlardan xabardor bo'lish uchun real vaqtda monitoring tizimlari ishlab chiqilishi va qo'llanilishi zarur.

2. Ma'lumotlarni Himoya Qilish Ma'lumotlarni shifrlash: O'g'irlanish va manipulyatsiyadan saqlanish uchun ma'lumotlarni shifrlash. Ma'lumotlar bazasining yaxlitligi: Ma'lumotlar bazalarini muntazam tekshirish va yangilab turish.

3. Etik Qoidalar va Standartlar Shaffoflik va hisobdorlik: SI tizimlarining qanday ishlashini tushunish uchun shaffoflikni ta'minlash. Tashkilotlar SI qarorlarining qanday qabul qilinishini tushuntirishi kerak. Etik komissiyalar: SI texnologiyalarini qo'llashda etik komissiyalar tashkil etish va ularning faoliyatini ta'minlash.

4. Ta'lim va Xavfsizlik Kulturi Foydalanuvchilarning ta'limi: Foydalanuvchilarni kiber xavfsizlik va SI bilan bog'liq muammolar to'g'risida o'qitish. Xavfsizlik madaniyatini rivojlantirish: Tashkilotlarda xavfsizlik madaniyatini yaratish va uni rag'batlantirish.

5. Texnologik Yangilanish Doimiy yangilanishlar: SI tizimlari va kiber xavfsizlik protokollarini muntazam yangilab turish. Bu zaifliklarni bartaraf etishga yordam beradi. Zaxira tizimlari: Muammolar yuzaga kelganda tezda tiklanish imkonini beradigan zaxira tizimlarini yaratish.

Xulosa

Axborot texnologiyalari, sun'iy intellekt va kiber xavfsizlik sohalaridagi dolzarb muammolarni hal etish uchun kompleks yondashuvlar zarur. Har bir soha o'zaro bog'liq bo'lib, birida yuzaga kelgan muammolar boshqa sohalarga ham ta'sir ko'rsatadi. Ushbu muammolarni hal etishda davlat, biznes va jamoatchilik o'rtasida hamkorlikni rivojlantirish juda muhimdir. Faqatgina birgalikda harakat qilish orqali biz kelajakdagi muammolarga tayyor bo'lishimiz va yangi imkoniyatlardan foydalanishimiz mumkin. Ma'lumotlarni himoya qilish — bu zamon talablariga mos keluvchi, doimiy e'tiborni talab etadigan jarayon. Ma'lumotlarni himoya qilishda muammolar keng ko'lamli va murakkab. Faqatgina kuchli himoya choralari orqali biz ma'lumotlarimizni xavfsiz saqlay olamiz. Sun'iy intellekt va kiber xavfsizlikda uchraydigan muammolarni bartaraf etish uchun kompleks yondashuvlar zarur. Tashkilotlar tahdidlarga qarshi strategiyalarni ishlab chiqishlari, ma'lumotlarni himoya qilish choralari kuchaytirishlari va etik masalalarga e'tibor berishlari lozim. Faqatgina shu yondashuvlar orqali biz SI va kiber xavfsizlikni yanada samarali ta'minlashimiz mumkin.

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SHAXSNI IDENTIFIKATSIYA QILISHDA FOTO-ROBOTLARNI CHIZISH USULLARI

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Annotatsiya. Ushbu maqolada shaxsni identifikatsiya qilish jarayonida foto-robotlarning rolini o'rganish maqsad qilingan. Foto-robotlar — shaxsiy belgilarning vizual ifodasi bo'lib, ularni chizish usullari zamonaviy texnologiyalar va san'atning birlashishi orqali amalga oshiriladi. Maqola foto-robotlarni chizish usullari, ularning afzalliklari va kamchiliklarini ko'rib chiqadi, shuningdek, ularni amaliyotda qo'llash misollari keltiriladi. Foto-robotlar yordamida jinoyatchilarni aniqlash va shaxslarni topish jarayonini tezlashtirish imkoniyatlari muhokama qilinadi.

Kalit so'zlar: identifikatsiya, foto-robot, qidiruv, kriminalistika, kompyuter grafikasi.

Shaxsni identifikatsiya qilishda foto-robotlar muhim vosita sifatida keng qo'llaniladi. Ular orqali shaxsiy belgilarning ko'rinishini aniq ifodalash mumkin bo'ladi, bu esa huquq-tartibot organlariga jinoyatchilarni aniqlashda yordam beradi. Foto-robotlar, asosan, guvohlarning so'zlariga asoslanib yaratiladi va zamonaviy texnologiyalar yordamida yuqori darajada aniq chizilishi mumkin.

Qidiruv tizimlarida guvohning keltirgan ma'lumotlari asosida hosil qilingan foto robot asosida uning shaxsini aniqlash samarali usullardan biri hisoblanadi. Bazada jinoyatga aloqador yoki butun mamlakat aholisining yuz tasvirlari saqlanadi va hosil qilingan foto robot kimga tegishli ekanligi aniqlanadi. Bunday vaziyatda foto robotning ishonchliligi uning shaxsini aniqlashda katta yordam beradi. Shaxsning foto robotlari qanday yaratilganiga qarab quyidagicha tasniflanishi mumkin [1]: Kriminalistik qo'lda chizilgan foto robotlar. Guvohning so'zlari va ma'lumotlari asosida rassom tomonidan qo'lda chiziladi. Ushbu usul XIX asrda qo'lladilgan bo'lib, tanib olish sohasida ko'p hollarda qo'llanilmaydi.

Bugungi kunda Foto-robotlarni chizish uchun quyida keltirilgan usullardan foydalaniladi:

An'anaviy chizish usuli

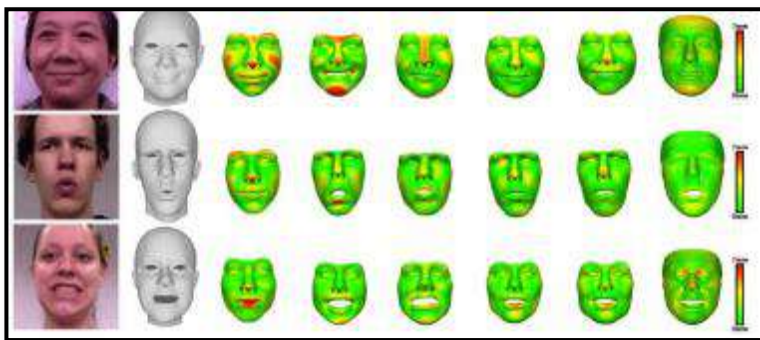
Bu usulda maxsus san'atkorlar yoki jinoiy tergovchilar guvohlarning ta'riflariga asoslanib, foto-robotlarni qo'lda chizadilar. Ushbu usul ko'p hollarda aniq va intuitiv bo'lishi bilan birga, vaqt talab etadi va ba'zida subjektiv fikrlarga bog'liq bo'lishi mumkin.



1-rasm. An'anaviy chizish usulida hosil qilingan rasm

Kompyuter grafikasi

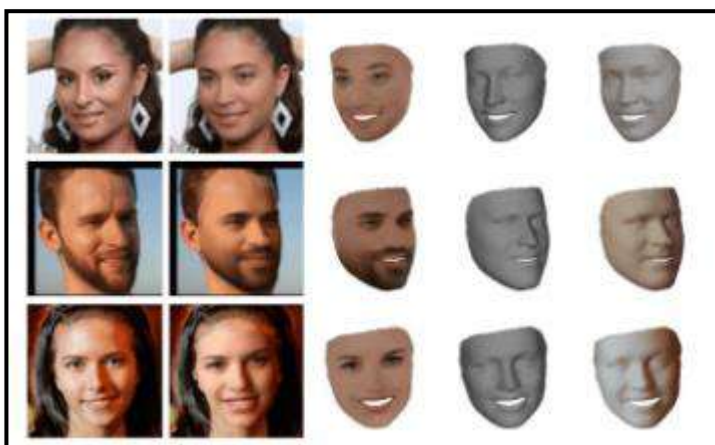
Kompyuter yordamida chizish usullari foto-robotlarni yaratishda keng tarqalgan. Dasturlar orqali guvohning tavsifiga mos ravishda belgilarning detallarini qo'shish va tahrirlash mumkin. Bu usul juda tez va samarali bo'lib, chizilgan suratning sifatini oshiradi.



2-rasm. Kompyuter grafikasi usulida hosil qilingan rasm

3D Modelleme

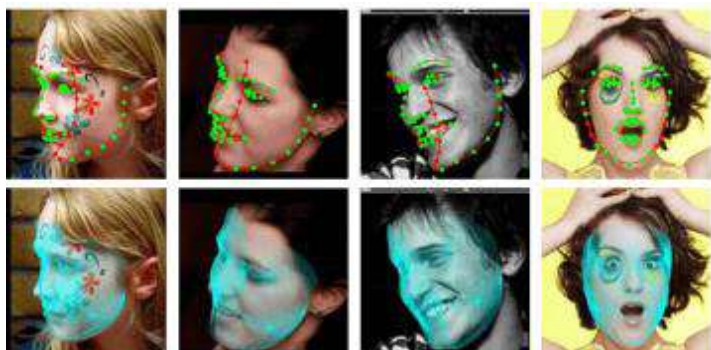
Zamonaviy texnologiyalar 3D modelleme imkoniyatlarini taqdim etadi. Bu usul shaxsiy belgilarning uch o'lchovli ifodasini yaratishga imkon beradi va shu orqali foto-robotni yanada realistik va aniq ko'rinishda taqdim etadi.



3-rasm. 3D Modelleme usulida hosil qilingan rasm

Biometrik ma'lumotlardan foydalanish

Ba'zi zamonaviy tizimlar biometrik ma'lumotlarni (masalan, yuz tanib olish texnologiyasi) birlashtirib, foto-robotni tezda yaratishga yordam beradi. Bu usul eng yuqori darajadagi aniqlikni ta'minlaydi, lekin texnologik jihatdan murakkab va qimmat bo'lishi mumkin.



3-rasm. Yuzni tanib olish texnologiyasi yordamida hosil qilingan rasm

Bundan tashqari kompozision foto robotlar: ular qo'lda chizilgan emas, maxsus dasturiy ta'minot yordamida ishlab chiqariladi. Guvoh eslab qolgan ma'lumotlarni operatorga yetkazadi, operator esa, bazada mavjud yuz kalit nuqtalarini tanlaydi va natijada dastur yordamida shaxsning foto roboti hosil qilinadi. Statistik ma'lumotlarga ko'ra, 80%dan ko'p hollarda huquqni muhofaza qilish organlarida ushbu turdagi foto robotni hosil qilish usullaridan foydalaniladi.

Yuqorida ko'rib o'tilgan usullarni o'ziga xos afzalliklari va kamchiliklari mavjud:

Afzalliklari:

Tezkor va samarali identifikatsiya.

Guvohlarning tasvirlarini aniq ifodalash.

Turli usullar orqali ko'proq aniqlik va ishonchlilik.

Kamchiliklari:

Sub'ektiv fikrlarga bog'liqlik.

Tezkor ko'rinishni yaratish qiyinligi.

Ba'zi texnologiyalarning qimmatligi va murakkabligi.

Foto-robotlar jinoiy tergovlar va xavfsizlik sohalarida keng qo'llaniladi. Ular yordamida guvohlar tomonidan berilgan ma'lumotlar asosida jinoyatchilarni topish jarayonlari tezlashtiriladi. Ko'plab mamlakatlarda foto-robotlar ish faoliyatida muvaffaqiyatli qo'llanilgan holatlar mavjud, bu esa ularning samaradorligini tasdiqlaydi.

Xulosa

Shaxsni identifikatsiya qilishda foto-robotlar muhim rol o'ynaydi. Ularning chizish usullari, jumladan an'anaviy chizish, kompyuter grafikasi, 3D modelleme va biometrik ma'lumotlardan foydalanish, jarayonni samarali va aniqlik bilan olib borishga yordam beradi. Ushbu texnologiyalarni rivojlantirish va qo'llash, jinoiy tergovlarda tezkor va ishonchli natijalar olishga imkon yaratadi.

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DAVLAT TASHKILOTLARIDA AXBOROT XAVFSIZLIGINI TA'MINLASH CHORA TADBIRLARI

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TATU Farg'ona filiali Axborot xavfsizligi kafedrasida katta o'qituvchisi

***Annotatsiya.** Davlat tashkilotlarida axborot xavfsizligi ma'lumotlarni maxfiy saqlash, ularni o'g'irlash yoki buzilishdan himoya qilish, hamda tizimlarda uzluksizlikni ta'minlash kabi yo'nalishlarni qamrab oladi. Buning uchun zamonaviy texnologiyalar, axborot xavfsizligi siyosatlari, normativ hujjatlar va mutaxassislar tomonidan amalga oshiriladigan kompleks chora-tadbirlar qo'llaniladi. Ushbu maqolada davlat tashkilotlarida axborotni xavfsizligini ta'minlashda bir nechta chora-tadbirlar ko'rib o'tilgan.*

***Kalit so'zlar:** axborot, xavfsizlik, qonun, kiberxavfsizlik, maxfiylik, konfidentsiallik, yaxlitlik, foydalanuvchanlik.*

Xozirgi kunda jamiyatda axborotga bo'lgan talab va ehtiyoj jadal suratda ortib bormoqda, ayniqsa, axborot texnologiyalarining kun sayin rivojlanib borishi natijasida axborotlar hajmi ham ortib bormoqda. Shu bilan bir qatorda axborotlarni ximoyalash, mahfiylikni va sir saqlanishini ta'minlash dolzarb masala bo'lib qolmoqda. Birinchi navbatda davlat organlari, tashkilotlarida albatta, axborot xavfsizligini, uning himoyasi va muhofazasini amalga oshirishi lozim.

Nima uchun davlat tashkilotlarida axborot xavfsizligini ta'minlash zarur? Axborot xavfsizligi- axborotning ruxsatsiz oshkor qilinishidan,

konfidsialligining va yaxlitligining buzilishidan, sirqib chiqishidan, yo'qotilishidan, modifikatsiyalanishidan yoki foydalanuvchanlik darajasining pasayishidan hamda noqonuniy tirajlanishidan himoyalanganligidir.[1]

Davlat tashkilotlarida axborotning yo'qolishi, o'g'irlanishi, ba'zi hollarda, maxfiy ma'lumotlarning bir qismini o'g'irlanishi, oshkor bo'lishi tashkilot uchun jiddiy salbiy oqibatlariga olib kelishi mumkin.

Bugungi kungacha davlatimizda axborot himoyasini, maxfiyligini, axborot xavfsizligini ta'minlash bo'yicha bir necha qonunlar, qarorlar ishlab chiqilgan bo'lib, bu me'yoriy xujjatlar asosida davlat tashkilotlarida amal qilib kelinmoqda.

Jumladan "Aloqa to'g'risida", "Axborot olish kafolatlari va erkinligi to'g'risida" , "Radiochastota spektri to'g'risida" , Telekommunikatsiyalar to'g'risida" , "Pochta aloqasi to'g'risida" , "Axborotlashtirish to'g'risida" , "Elektron hujjat aylanishi to'g'risida" , "Elektron to'lovlar to'g'risida" , "Tijorat siri to'g'risida", "Bank siri to'g'risida" kabi O'zbekiston Respublikasining qonunlarida axborot maxfiyligi, axborot siri, axborot himoyasi bo'yicha tegishli moddalar belgilab o'tilgan[3].

Vazirlar Mahkamasining 2005-yil 22-noyabrdagi 256-son "Axborotlashtirish sohasida normativ-huquqiy bazani takomillashtirish to'g'risida"gi Qaror 2-ilovaga asosan "Davlat organlari axborot tizimlarining axborot xavfsizligini ta'minlash" bo'yicha ko'rsatmalar berilgan.[2]

Unga ko'ra davlat tashkilotlarida axborot xavfsizligini ta'minlashda quyidagi chora tadbirlar amalga oshirilishi kerak:

Davlat tashkilotlarining axborot tizimlarida axborot xavfsizligi axborotlarni himoya qilishning tashkiliy-texnik chora-tadbirlar kompleksini hamda dasturiy-apparat vositalarini o'z ichiga oladigan tizim bilan ta'minlanishi kerak;

Tashkiliy chora-tadbirlar yuridik va jismoniy shaxslarni davlat tashkilotlarining axborot tizimlarini loyihalash, yaratish va ulardan foydalanish hamda ularni qo'llab-quvvatlashga jalb etishni tartibga soluvchi harakatlar va talablar ro'yxatidan iborat bo'ladi;

Davlat sirlariga yoki maxfiy axborotlarga mansub axborotlarni ishlaydigan axborot tizimlarini yaratish ishlari ularni yaratish va qo'llab-quvvatlash uchun mas'ul bo'lgan davlat tashkilotlari tomonidan bajarilishi kerak;

Zarurat bo'lganda, davlat tashkilotlarining axborot tizimlarini yaratish va qo'llab-quvvatlash uchun maxfiy axborotlarni ishlaydigan yuridik shaxslarni belgilangan tartibda jalb etishga yo'l qo'yiladi;

Davlat organlarining axborot tizimlarida qo'llanadigan axborotlarni himoya qilishning dasturiy-texnik vositalari litsenziyalangan, sertifikatlangan bo'lishi va quyidagilarni:

himoya qilinadigan axborot resurslarni identifikatsiyalashni;
axborot tizimidan foydalanuvchilarni autentifikatsiya qilishni;
tizimda aylanayotgan axborotlarning maxfiyligini;
ma'lumotlarni asl nusxada ayirboshlashni;
axborotlarni shakllantirish, uzatish, foydalanish, ishlash va saqlashda
ma'lumotlarning yaxlitligini;

normal foydalanish sharoitlarida tizimdagi barcha resurslardan ruxsat bilan foydalanishni;

foydalanuvchilarning axborot tizimi resurslaridan foydalanishi chegaralanishini;

foydalanuvchilarning kirish va chiqish harakatlarini, shuningdek axborot tizimi resurslaridan foydalanish huquqlari buzilishlarini ro'yxatga olishni;

axborot xavfsizligini ta'minlash tizimining butligi va ish qobiliyatini nazorat qilishni;

favqulodda vaziyatlarda tizimning xavfsiz va uzluksiz ishlashini ta'minlashi kerak.

Foydalanuvchilarning axborotlarni himoya qilishning kriptografik vositalaridan, shu jumladan elektron- raqamli imzo vositalaridan foydalangan holda davlat organlarining axborot tizimidagi ishlari qonun hujjatlarida belgilangan tartibda amalga oshirilishi kerak.

Davlat sirlariga yoki maxfiy axborotga ega bo'lgan axborotlarni ishlash uchun mo'ljallangan axborot tizimlarining texnik vositalari qonun hujjatlarida belgilangan tartibda majburiy sertifikatlanishi kerak.

Maxfiy axborotlar mavjud bo'lgan va ular ishlanadigan axborot tizimlarini xalqaro axborot tarmoqlariga, shu jumladan Internet tarmog'iga kiritish ularni himoya qilish bo'yicha zarur chora-tadbirlar ko'rilgandan keyin amalga oshiriladi.

Maxfiy va mutlaqo maxfiy axborotlarga ega bo'lgan va ularni ishlaydigan axborot tizimlarini xalqaro axborot tarmoqlariga, shu jumladan Internet tarmog'iga kiritishga yo'l qo'yilmaydi.

Davlat organlari axborot tizimlarining axborot xavfsizligini ta'minlash tizimi xavfsizlikka tahdidni, shuningdek ularning normal ishlashining buzilishi bilan bog'liq sabablar va shart-sharoitlarni o'z vaqtida aniqlashni ta'minlaydigan tegishli xavfsizlik siyosati bilan amalga oshirilishi kerak.

Davlat organlarining davlat sirlariga yoki maxfiy axborotlarga mansub axborot bilan ishlash uchun mo'ljallangan axborot tizimlari qonun hujjatlarida belgilangan tartibda axborot xavfsizligi talablariga muvofiq majburiy attestatsiyadan o'tkazilishi kerak.

Ishlab chiqish va foydalanishning barcha bosqichlarida axborot tizimlarining axborot xavfsizligini ta'minlash vositalari va usullari axborot tizimining maqsadiga qarab hamda axborot xavfsizligini ta'minlash sohasida amaldagi normativ hujjatlarga muvofiq davlat organlari tomonidan belgilanadi.

Xulosa o'rnida aytadigan bo'lsak, hozirgi kunda zamonaviy axborotkommunikatsiya texnologiyalarining rivojlanib borishi davlat tashkilotlarida faoliyat samaradorligini oshirishda muhim omil bo'lib xizmat qilmoqda. Shu bilan birga axborot xavfsizligini ta'minlash bilan bog'liq qonun hujjatlarini xalqaro standartlar, xorij tajribasi va milliy manfaatlarini hisobga olgan holda takomillashtirib borish lozim bo'ladi.

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TARMOQ YORDAMCHISI (IDS/IPS)

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Annotatsiya. Tarmoq yordamchisi (IDS/IPS) - zamonaviy axborot xavfsizligi tizimlarida muhim ahamiyatga ega bo'lgan komponentlardir. IDS (Intrusion Detection System) va IPS (Intrusion Prevention System) tizimlari tarmoq va uning resurslarini himoya qilish maqsadida ishlatiladi. IDS tizimlari noxush faoliyatni aniqlash va ogohlantirish uchun ishlatilsa, IPS tizimlari esa shunday faoliyatni oldini olish uchun javobgarlikni o'z zimmasiga oladi. Ushbu annotatsiyada IDS/IPS tizimlarining ishlash prinsiplari, arxitekturasi, foydalanuvchilarga taqdim etadigan imkoniyatlari va zamonaviy tahdidlarga qarshi kurashishdagi o'rni ko'rib chiqiladi.

Kalit so'zlar. Tarmoq xavfsizligi, IDS (Intrusion Detection System), IPS (Intrusion Prevention System), Noqonuniy faoliyat, tahdidlar, monitoring, ma'lumotlarni himoya qilish, xavfsizlik, protokollar.

Nazariy qism.

IDS qisqartmasi Intrusion Detection System - bosqinni aniqlash tizimi degan ma'noni anglatadi. IPS yoki Intrusion Prevention System - bu virtual xavfsizlik tizimi. An'anaviy xavfsizlik vositalariga nisbatan - antivirus, spam-filtr, xavfsizlik devori - IDS/IPS ancha yuqori darajadagi xavfsizlikni ta'minlaydi.

Antivirus fayllarni tahlil qiladi, spam filtri harflarni tahlil qiladi, xavfsizlik devori IP ulanishlarini tahlil qiladi. IDS/IPS tarmoq ma'lumotlari va xatti-harakatlarini tahlil qiladi. Huquq va tartib qo'riqchilari bilan o'xshashlikni davom ettiradigan xavfsizlik devori, pochta filtrlari, antivirus va hodimlardir.

IDS arxitekturasi va texnologiyalari

IDS ning ishlash printsipi trafik tahlili asosida tahdidlarni aniqlashdan iborat bo'lib, administratorga boshqa harakatlar qolmaydi. IDS tizimlari o'rnatish joyi va ishlash tamoyillari asosida turlarga bo'linadi.

O'rnatish joyida ikkita eng keng tarqalgan IDS turi:

Tarmoq hujumlarini aniqlash tizimi (NIDS),

Xostga kirishni aniqlash tizimi (HIDS).

Birinchisi qatlamlar to'plamida ishlaydi, ikkinchisi esa bir vaqtning o'zida faqat bitta qatlamni qabul qiladigan xostdir.

Tarmoqni aniqlash dasturi (NIDS)

NIDS texnologiyasi strategik qiymat tizimini yaratish va biznes/tijorat trafigini tahlil qilish tizimidir. NIDS trafikni chuqur darajada tahlil qiladi, havola darajasidan dastur darajasiga qadar har bir paketni ko'rib chiqadi.

NIDS internet tarmog'i eklairan yoki xavfsizlik devoridan farq qiladi. Xavfsizlik devori hujumni aniqlaydi, xavfsizlik tizimi sozlanadi va NIDS ichki tahdidlarni aniqlay oladi.

Tarmoqqa tajovuzni aniqlash tizimlari butun tarmoqni kuzatib boradi, bu esa to'liq Shenzheniyaga pul sarflashdan qochish imkonini beradi. Hech qanday kamchilik yo'q: NIDS katta hajmdagi resurslarni iste'mol qiladigan barcha tarmoq trafigini kuzatib boradi. Trafik hajmi qanchalik yuqori bo'lsa, CPU va RAM resurslariga talab shunchalik yuqori bo'ladi. Bu ma'lumotlar almashinuvida sezilarli kechikishlarga va ishchi to'plamning o'sishining pasayishiga olib keladi. Katta hajmdagi ma'lumotlar ham NIDSni bosib o'tishi mumkin, bu esa tizimning ba'zi paketlarni ishga tushirishiga olib keladi va to'plamni zaif qoldiradi.

HiDS

Muqobil tarmoq tizimi xostlardir. Bunday tizimlar tarmoq ichidagi bitta xostga o'rnatiladi va faqat shu xostni himoya qiladi. HiDS, shuningdek, birdan ortiq qurilmalar uchun kiruvchi va chiquvchi paketlarni tahlil qiladi. HiDS tizimi suratga olingan fayllarni yaratish printsipi asosida ishlaydi: u tasvirning joriy versiyasini o'chiradi va uni avvalgisi bilan taqqoslaydi, shuningdek, mumkin bo'lgan momaqaldiroqlarni aniqlaydi. HiDS - o'z konfiguratsiyasini kamdan-kam o'zgartiradigan muhim vositalar va tizimlar uchun eng yaxshi o'rnatish.

O'rnatish joyi bo'yicha boshqa IDS turlari

NIDS va HiDS dan tashqari, butun majmuani himoya qiluvchi PIDS (Perimetrqa kirishni aniqlash tizimlari) ham mavjud, lekin faqat chegaralar va ob'ekt buzilganda signal beradi. Signalli panjara yoki "Tramp devori" kabi.

Yana bir xilma-xillik - VMIDS (Virtual mashinaga asoslangan hujumni aniqlash tizimlari). Bu texnologik virtualizatsiyaga asoslangan tahdidlarni aniqlash tizimining bir turi. Ushbu IDS tizimni alohida qurilmani ochmasdan o'rnatish imkonini beradi. Etarli darajada rivojlangan xavfsizlik va har qanday shubhali harakatni aniqlaydigan virtual mashina.

Xulosa

Tarmoq yordamchisi (IDS/IPS) tizimlari axborot xavfsizligi strategiyalarining ajralmas qismidir. Ular tarmoqni har xil tahdidlardan himoya

qilishda muhim rol o'ynaydi, bu esa tashkilotlarga imkon beradi, o'z ma'lumotlarini saqlash va xavfsizligini ta'minlashda. IDS va IPS tizimlarining samaradorligi, ularning yangilanishi va modernizatsiyasi bilan bevosita bog'liqdir, shuning uchun zamonaviy xavf-xatarlar bilan kurashishda innovatsion yondashuvlar zarur. Tarmoq xavfsizligi mutaxassislari uchun IDS/IPS tizimlaridan to'g'ri foydalanish, xavfsizlik darajasini oshirish va potentsial tahdidlarga tezkor javob berish imkoniyatini taqdim etadi.

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OFFLINE HANDWRITTEN SIGNATURE VERIFICATION USING ONE-CLASS SVM

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Abstract. *The results of our approach to off-line signature verification are presented. We take into account the features of the author's handwriting are presented. Only $N \geq 5$ authentic signatures of a person are used to verify his signature. Signature images are pre-processed and normalized. We then compute two new features that describe particulars of the person's signature. For every person, a writer-dependent one-class SVM classifier is developed. The accuracy of our approach for verifying all 2640 signatures from the public CEDAR database was 99.77%. All fake signatures were correctly recognized*

Keywords: *signature, off-line verification, features, classifier*

Introduction

Signature recognition is a behavioral biometric technology. Signature verification is a procedure for determining its authenticity in the presence of a small number of genuine signatures of the same person. Most methods on this topic use machine learning to extract signature features and classify them into fake and genuine [1-3]. The problem is that in practice, when an expert establishes the authenticity of a person's signature; his fake signatures are not given! The number of authentic human signatures presented on paper available for analysis is also limited. Usually it does not exceed 5-15 samples.

Since the features of each person's signature are individual, the classifier needs to be trained on the signatures of one person. In the absence of fake signatures of this person, the task of signature verification is one-class and methods using a neural network approach are unsuitable for solving it. At the moment, the only machine learning method suitable for solving the problem of offline signature verification is development of a one-class SVM model using available samples of genuine signatures of the person [4].

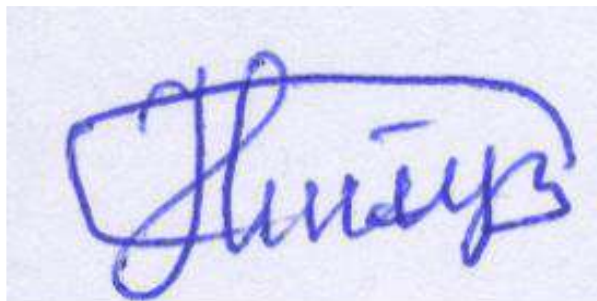
The paper describes a procedure for signature image preprocessing, its image normalization, two new signature features and a new feature space for training the one-class SVM model and verification the given signature.

Signature Image Preprocessing

A signature on paper can be made by pens of different thicknesses and different colors. As a result of our experiments, it was found that it is optimal to scan any signature with a resolution of 600 dpi as a color image. The image is then converted to grayscale, taking into account the dominant tones of the background and the signature itself. After this, the image is converted into binary representation by the Otsu method, since, as a rule, the background of the documents on which the signature is presented is uniform.

Morphological and median filters are applied to the binary signature image. The image is then rotated using the main principal component computed by PCA method so that the signature is oriented horizontally.

Since all digitized signatures have different sizes in pixel, we find a circumscribing rectangle in the image that describes the signature, cut it out and scale it to a certain size. In the experiments, we used a normalized signature template size of 300×150 pixels. Using a method of mathematical morphology, a contour representation of the signature image was constructed. All signatures are transformed to such binary contour representation of a fixed size, see an example in Fig.1.



Example of an original signature image and its normalized contour representation.

New Signature Features

The contour representation of the normalized signature is used to compute its features. As new features that describe the individual characteristics of a signature, it is proposed to use local binary patterns (LBP) and the local curvature of the signature contours, calculated in the neighborhood of each pixel of the normalized signature.

A. LBP signature code

After calculating all the values of LBP features of a binary signature image, their histogram is constructed (Fig. 2). It is convenient to write it as an array of 256 elements. From this array, the first and last elements corresponding to the cases when all eight neighboring pixels have white or black values are discarded, and the histogram is normalized. We call the set of 254 numbers as the LBP signature code. It is a multidimensional feature that describes the frequency distribution of local structures of the signature contour, regardless of color, line thickness, original dimensions and orientation of the original signature represented on paper.

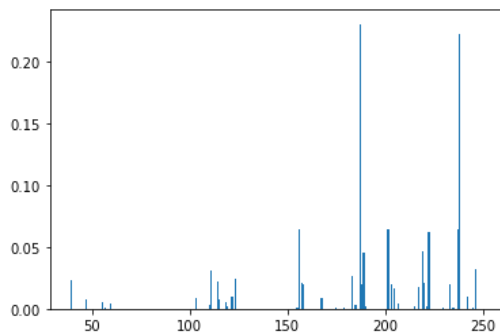


Fig. 2. Normalized histogram of the LBP values for the contours represented in Fig.1.

B. Local curvature code

Curvature is a widely used invariant feature for image classification. Flynn and Jain [5] report an empirical study of five curvature estimation methods. The main finding of their study is that the estimated curvature values are extremely sensitive to quantization noise and require multiple smoothing of the lines to obtain stable estimates.

There are only three variants of consecutive contour pixels invariant to rotation and giving different curvature values. The dark color in Fig. 3 shows the pixel where the circle touches the curve. It calculates the amount of curvature of a curve.



Fig. 3. Three variants for the positions of three consecutive contour pixels.

To increase the number of options for contour curvature values, we use five consecutive 8-connected contour pixels. In this case, the curvature in a pixel is not calculated exactly, it is approximated.

Note that rotations of the pixel configurations presented in Fig. 3 by 45° do not change the curvature values. The minimal curvature is 0 in the case when all pixels lie on the same straight line.

Each person's signature in the normalized raster representation has a different number of pixels, so the histogram of the local curvature values must be normalized by dividing by the number of points at which the curvature was calculated (Fig.4).

Normalized histograms, presented as an array or a feature vector, we call the signature local curvature code. It describes the individual features of a person's digitized signature.

For every signature, two codes of local features are calculated. Codes of different signature images can be compared with each other and, by assessing their proximity, a conclusion can be made about the similarity of the original signatures.

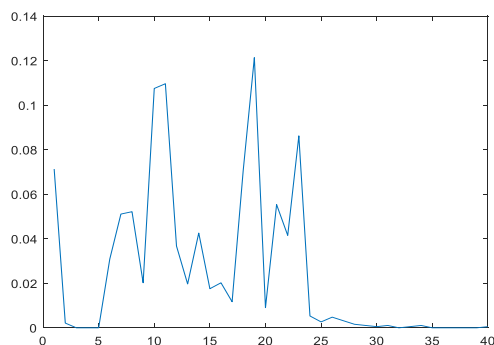


Fig.4. Normalized histogram of the local curvature values for the contours represented in Fig.1.

Classification

In our research, instead of the classical representation of an image of an object (in this study, a signature) as a point in a multidimensional space, we use the transformation of the image into a two-dimensional space. In it, images are presented in the form of proximity of pairs of signatures, while the proximity of signatures is assessed by rank correlation coefficients calculated for the codes of these signatures. It is possible to use other functions for calculating proximity,

however, the correlation coefficient, unlike other functions, has a limited range of values [-1; +1] and is easy to calculate. This feature space describes the proximity images of all possible pairs of genuine human signatures. The number of patterns in this feature space depends on the N genuine signatures used in the verification procedure. These parameters are presented in Table I. One can see that bigger N, more patterns for classifier model learning.

Table I. Number of patterns for different n of genuine signatures used in verification procedure

Number of patterns with verifiable subjects	signature, N	Numbers of patterns of genuine signatures, N(N-1)/2 subject
5		10
7		21
9		36
11		55
13		78
15		105

Recall that generally used augmentation procedures such as image rotation, scaling, changing color and contrast do not change the number of the normalized signature representation, i.e. do not increase the number of patterns for training a classifier. At the same time, the transition from a signature pattern to patterns of the proximity of pairs of signatures allows us to increase the number of patterns for training, see Table 1. Classification in the original multidimensional feature space with a small number of signature patterns is less accurate and sensitive to the outliers, since their ranges of values are not equal. In the new feature space, this drawback is leveled out, since the correlation has the fixed and limited range of values, and the number of patterns of genuine objects increases. For example, with N=15 instead of 15 patterns, we can learn the classifier model on 105 patterns.

When performing real verification examinations, there are no fake signatures, so we use a one-class classifier such as SVM [6]. After training its model on a class of authentic signatures of a person, two codes of the verified signature are compared with the codes of all authentic signatures used in training, i.e. with N patterns of the verifiable signature are constructed. Next, we analyze whether most of these N patterns fall into the class of genuine signatures or into outliers. The classification result is determined by the majority.

The experiments were carried out on the basis of the CEDAR dataset containing 1320 genuine and 1320 forged signatures. 24 signatures of each type for 55 people [7, 9, 10].



Fig. 5. Top row – images for verification from the CEDAR database: on the left – a fake signature, on the right – a genuine one; bottom row - seven genuine signatures of the same person used for learning

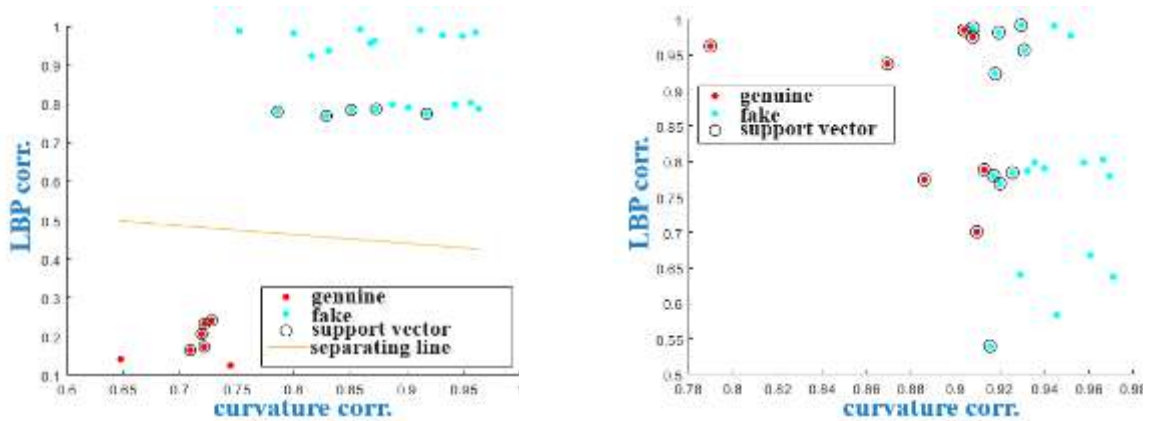


Fig. 6. An example of signature verification when compared with seven genuine ones: (a) the Ver_f.png signature may be separated from the genuine signatures and it is recognized as fake; (b) the signature Ver_t.png cannot be separated from other signatures and it is recognized as genuine

Table II. Verification results of 2640 handwritten signatures from cedar database with different N

N	TP	TN	FP	FN	Accuracy, %
5	1131	1320	189	0	92,84
7	1237	1320	83	0	96,86
9	1279	1320	41	0	98,45
11	1293	1320	27	0	98,98
13	1307	1320	13	0	99,51
15	1314	1320	6	0	99,77

The results obtained are superior to known results obtained using writer-dependent classifiers. The best published results for verifying signatures from CEDAR database based on writer-dependent classifiers were obtained in [4] with $N = 12$ and accuracy was equal to 94.4%. The average EER errors were 8.70%, 7.83%, and 5.60% when using $N = 4, 8,$ and 12 genuine signatures to train the one-

class model. Note, that in [4] the results were obtained not for the all database signatures, but for 45,4% of the signatures presented in it. The rest 55% were used for classifier training.

Ghosh in [8] reported about a Neural Network classification model trained on 12 genuine signatures of each person presented in the Cedar database. He verified the remaining genuine and all forged signatures from the database. Thus, for 75% of the rest images from the database, he obtained accuracy of 99.94%. Note that he used individual signature models of 55 people. If his system is tested on the signatures of people not included in this database, the result will be unpredictable.

Conclusion

The paper presents results of our research devoted to solving the problem of verifying signatures scanned from paper documents, i.e. the off-line signature verification.

We proposed two fundamentally new features that describe the individual characteristics of a person's signature. They describe the normalized frequency distribution of LBP and the normalized frequency distribution of local curvature values calculated from a binary signature contour representation.

To implement the verification procedure, we propose to use a new feature space in which patterns of the proximity of every signature pair codes are presented. Usage the proximity patterns of signature pairs allows us to reduce dimension of the feature space, but increase the number of patterns for training a classifier.

We have developed a writer dependent one-class SVM classifier. On Cedar database trained on 15 randomly selected genuine signatures it have demonstrated accuracy 99.77% when all 2640 signatures were verified. An individual classifier was built for every signature. Moreover, all fake signatures were correctly recognized when the classifier was trained on $N \geq 5$ genuine signatures of one person.

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FUNKSIYA VA REKURSIV FUNKSIYALARDAN FOYDALANISH ALGORITMLARINI ISHLAB CHIQISH

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Annotatsiya: Bu maqola, funksiyalar va rekursiv funksiyalar mavzusidagi algoritmlar-ni yaratishning asosiy usullarini o'rgatadi. Ushbu maqola, dasturlash sohasidagi muhim kontseptlarni tushunish uchun funksiya va rekursiv funksiyalar-ni qanday samarali qo'llab-quvvatlashni va ulardan foydalanishni ko'rsatadi. Maqola, muallifning o'zining tajribasidan olingan ilmiy va amaliy bilimlarni jamlab boradi.

Kalit So'zlar: Funksiyalar, Rekursiya, Algoritm, Dasturlash, Tushuncha, Samarali, Qo'llab-quvvatlash, O'zlashtirish, Tasavvur, O'rganish.

Dasturlash sohasida funksiya va rekursiv funksiyalar qo'llash algoritmlarini o'rganish, dasturchilarning tajribalarini rivojlantirish, kodni tizimlash va optimallashtirish jarayonlarini tushuntirishga qaratilgan integrativ maqoladir.

Funksiyalar: Funksiyalar, kodni qo'shimcha tuzilganlik va o'zlashtirish uchun asosiy vositalardir. Maqolada, funksiya yaratish, uni chaqirish, argumentlarni qabul qilish, va qiymatlarni qaytarish jarayonlari ko'rsatiladi. Misollar orqali funksiyalar yordamida kodni modulyar qilishning muhimligi o'rgatiladi.

Rekursiv Funksiyalar: Rekursiv funksiyalar, o'z o'zini chaqirish orqali yechim topishda ishlatiladi. Maqolada, rekursiv funksiyalar yaratish, ularni aniq va samarali shakllantirish, va ulardan to'g'ri foydalanishning ilmiy jihatlari o'rgatiladi. Rekursivlik, maslahatlarni darhol hal qilishda va dasturlashda yechim topishda qanday yordam bera olishni ko'rsatadi.

Algoritm-lar va Dasturlash: Maqola, funksiyalar va rekursiv funksiyalar orqali algoritm-lar yaratish va ulardan foydalanishning asosiy tamoyillarini ta'kidlaydi. Dasturlashda eng umumiy algoritmlar, ularni optimallashtirishning xususiyatlari va dasturchi uchun foydali maslahatlar maqolada ko'rsatiladi.

Maqola, funksiyalar va rekursiv funksiyalar bilan ishlashning dasturlash sohasidagi muhimligini tushuntiradi. Funksiyalar kodni qo'shimcha tuzilgan va o'zlashtirishga imkoniyat beradi, shuningdek, ulardan foydalanish, kodni qo'llab-quvvatlash va tahlil qilishni osonlashtiradi.

Rekursiv funksiyalar esa algoritmlarni yaratishda va ulardan foydalanishda samarali usullardan birini taklif qiladi. Rekursivlik, maslahatlarni qisqa muddat ichida hal qilishda foydali bo'lishi sababli, maqola dasturchilar uchun bu konseptlarni tushuntirish va ularni yaxshi o'rganishda yordam bera oladi.

Maqola, algoritmik yondashuv, kodni tizimlash, va dasturlarni optimallashtirishda foydalaniladigan muhim taktikalarni taklif qiladi. Bu bilimlar, dasturchilarga muvaffaqiyatli, optimallashtirilgan, va modulyar kod yozishda yordam bera olishadi.

Barcha qismlar birgalikda, maqola funksiyalar va rekursiv funksiyalar orqali yaratilgan algoritmlarning dasturchilar uchun qanday ma'qulli va samarali bo'lishini ta'kidlaydi. Bu esa, dasturlash sohasida yangi chegara va yondashuvlarni qo'llash, dasturchilarning professional rivojlanishida katta ahamiyatga ega bo'ladi.

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LSTM MODELIDAN FOYDALANGAN XOLDA VAQTGA BOG'LIQ MASALALARNI BASHORATLASH

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Annotatsiya. *Vaqtga bog'liq bo'lgan ma'lumotlar va ularni prognozlash, iqtisodiyot, tibbiyot, energetika kabi ko'plab sohalarda muhim ahamiyatga ega. An'anaviy yondashuvlar vaqt qatorlarini prognozlashda yetarlicha aniqlikka ega bo'lmasada, ular uzoq muddatli bog'lanishlarni tahlil qilishda kamchiliklarga ega. Bu muammolarni bartaraf etishda LSTM (Long Short-Term Memory) modellarining ahamiyati oshib bormoqda. Ushbu tezisdan LSTM modelining vaqt qatorlari prognozidagi roli va tibbiyotda qo'llanilishi haqida so'z yuritiladi.*

Kalit so'zlar. *LSTM (Long Short-Term Memory), RNN (Recurrent Neural Network), ARIMA, SARIMA, Exponential Smoothing.*

Asosiy qism. LSTM modelining asosiy printsiplari. RNN (Recurrent Neural Network) lar vaqtga bog'liq ma'lumotlar bilan ishlashda yaxshi natijalar ko'rsatsada, ular uzoq muddatli bog'lanishlarni saqlashda qiyinchiliklarga duch keladi. LSTM modellar esa bu muammoni hal qilish uchun maxsus arxitekturaga ega bo'lib, ular 'cell state' orqali ma'lumotlarni uzoq muddatli xotirada saqlaydi. LSTM

modellarining asosiy komponentlari quyidagilar: 'cell state', 'forget gate', 'input gate', va 'output gate'.

LSTM modelining vaqt qatorlari prognozida qo'llanilishi. Vaqt qatorlari prognozi o'z ichiga vaqt bo'yicha kuzatiladigan ma'lumotlarni bashorat qilish jarayonini oladi. LSTM modeli vaqt qatorlarida mavjud bo'lgan o'zaro bog'lanishlarni aniqlash va uzoq muddatli tendensiyalarni o'rganish uchun qulaydir. LSTM modelini qo'llash uchun ma'lumotlarni tayyorlash, modelni tuzish, o'qitish va baholash kabi bosqichlar talab qilinadi. Modelning samaradorligini oshirish uchun giperparametrlarni to'g'ri tanlash ham muhimdir.

Tibbiyotdagi qo'llanishi. LSTM modellaridan tibbiyot sohasida ko'plab kasalliklarni oldindan aytishda foydalanish mumkin. Masalan, yurak-qon tomir kasalliklarini oldindan aniqlash yoki qon shakar darajasini prognozlashda LSTM modellaridan foydalanish mumkin. Tibbiy ko'rsatkichlarning vaqt bo'yicha o'zgarishini aniqlashda ham LSTM modellarining yuqori aniqlikka ega ekanligi ko'rsatib o'tilgan.

LSTM modeli va an'anaviy yondashuvlar taqqoslovi. An'anaviy yondashuvlar, masalan, ARIMA, SARIMA yoki Exponential Smoothing kabi modellar vaqt qatorlarini prognozlashda ko'plab kamchiliklarga ega. Ular ko'pincha qisqa muddatli tendensiyalarni aniqlay oladi, lekin uzoq muddatli bog'lanishlarni hisobga ololmaydi. LSTM modellar esa uzoq muddatli bog'lanishlarni saqlash orqali samaradorlik va aniqlikni oshiradi.

LSTM modelining tuzilishi. LSTM modeli qayta aloqa tarmog'i (RNN) asosida yaratilgan va uning asosiy xususiyati uzoq muddatli bog'lanishlarni eslab qolishidir. Uning xotira hujayralari vaqt qatorlaridagi ma'lumotlarni uzoq muddat davomida eslab qolishga yordam beradi. Bu turdagi model quyidagi asosiy komponentlardan tashkil topadi:

- 1) Xotira hujayrasi (Memory cell) – asosiy qism bo'lib, vaqt qatorlarining muhim ma'lumotlarini saqlaydi.
- 2) Kiritish darvozasi (Input gate) – yangi ma'lumotlarni qabul qilish va ularga ishlov berishga yordam beradi.
- 3) Chiqish darvozasi (Output gate) – xotira hujayrasidan kerakli ma'lumotlarni olish imkonini beradi.
- 4) Unutish darvozasi (Forget gate) – eskirgan yoki ortiqcha bo'lgan ma'lumotlarni yo'q qiladi.

Vaqt qatorlari va LSTM. Vaqt qatorlari – bu ma'lumotlarning vaqt bo'yicha ketma-ket o'zgarishi natijasida hosil bo'lgan to'plam. Bunday ma'lumotlarda vaqt bo'yicha ma'lum bir naqshlar mavjud bo'lib, ular keyingi davr uchun bashorat qilishda qo'llaniladi. LSTM modellarining afzalliklari aynan shundaki, ular vaqt

bo'yicha uzoq muddatli bog'liqliklarni eslab qolishga va vaqt qatorlarida aniqlik bilan bashorat qilishga yordam beradi. Bu esa moliyaviy bozorlar, energiya iste'moli va boshqa jarayonlarda prognozlar yaratishga imkon beradi.

Misol: Aksiyalar narxini bashorat qilish. Quyidagi misolda aksiyalar narxini LSTM modelida bashorat qilish ko'rsatilgan. Buning uchun biz aksiyalar narxining oldingi kunlar bo'yicha o'zgarishini tahlil qilamiz va LSTM modeli yordamida keyingi kunlar uchun narxlar prognozini yaratamiz. Misol uchun, ushbu sintetik ma'lumotlar bo'yicha vaqt qatori tasvirlangan grafik keltiriladi:



1-rasm. Aksiya narxini bashorat grafigi.

Yuqoridagi grafikda sintetik vaqt qatori ko'rsatilgan bo'lib, bu aksiyalar yoki boshqa jarayonlar uchun mos keladigan ma'lumotlarning vaqt bo'yicha o'zgarishini ifodalaydi. Ushbu ma'lumotlar LSTM tarmog'i yordamida tahlil qilinib, kelajakdagi davrlar uchun prognoz qilinadi.

Xulosa. LSTM modeli vaqt qatorlari prognozida an'anaviy yondashuvlarga qaraganda aniqroq natijalar berishi tadqiqotlar bilan isbotlangan. Ayniqsa, tibbiyot sohasida LSTM modellarining imkoniyatlari keng bo'lib, kasalliklarni oldindan aytish va bemorlarning holatini kuzatishda ularning samaradorligi yuqori. Kelajakda LSTM modellarini yanada rivojlantirish va yangi sohalarda qo'llash tadqiqot uchun katta imkoniyatlar yaratadi.

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РАЗВИТИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В НОВОМ УЗБЕКИСТАНЕ И АКТУАЛЬНЫЕ ПРОБЛЕМЫ

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Аннотация. В статье рассматривается развитие искусственного интеллекта (ИИ) в Новом Узбекистане, акцентируется внимание на актуальных проблемах и вызовах, с которыми сталкивается страна в этой сфере. Узбекистан активно внедряет технологии ИИ в различные области, включая образование, здравоохранение, экономику и государственное управление. Однако на пути к успешной интеграции ИИ существуют серьезные проблемы, такие как нехватка квалифицированных кадров, безопасность данных, этические вопросы и необходимость правового регулирования. В статье предлагаются рекомендации и стратегии для эффективного развития ИИ в стране.

Ключевые слова: искусственный интеллект, Узбекистан, цифровая экономика, подготовка кадров, безопасность данных, этические вопросы, государственное управление.

Введение. Развитие технологий искусственного интеллекта становится важным элементом современных экономик, и Узбекистан не является исключением. В последние годы в стране наблюдается активное внедрение ИИ в различные сферы жизни. Программа "Цифровой Узбекистан", запущенная в 2020 году, акцентирует внимание на необходимости интеграции новых технологий для повышения качества жизни граждан и развития экономики.

Направления развития искусственного интеллекта. Развитие ИИ в Новом Узбекистане охватывает несколько ключевых направлений:

Образование: В образовательных учреждениях разрабатываются новые курсы по ИИ, чтобы подготовить молодое поколение к работе с современными технологиями. Важно обеспечить доступ к качественному обучению и подготовить специалистов, способных решать сложные задачи.

Здравоохранение: ИИ находит применение в диагностике заболеваний, анализе медицинских данных и оптимизации процессов в здравоохранении. Использование ИИ помогает врачам принимать более точные решения и повышает эффективность лечения.

Экономика и промышленность: Внедрение ИИ в производственные процессы позволяет оптимизировать управление ресурсами, повышать производительность и снижать затраты. Умные системы помогают в мониторинге и анализе производственных процессов.

Государственное управление: ИИ используется для повышения эффективности государственных услуг, оптимизации бюрократических процессов и улучшения взаимодействия с гражданами. Цифровизация государственных услуг помогает сократить время ожидания и повысить прозрачность.

Актуальные проблемы. Несмотря на положительные тенденции, Узбекистан сталкивается с рядом актуальных проблем:

Нехватка квалифицированных кадров: Рынок труда испытывает дефицит специалистов в области ИИ. Необходимы меры по улучшению подготовки кадров через образовательные программы и курсы повышения квалификации.

Безопасность данных: ИИ-системы обрабатывают огромные объемы данных, и их безопасность становится критически важной. Защита личной информации граждан и предотвращение кибератак требуют значительных усилий со стороны государства и бизнеса.

Этические вопросы: Использование ИИ в принятии решений может привести к вопросам о дискриминации и соблюдении прав человека. Необходима разработка этических норм и стандартов для использования ИИ.

Правовое регулирование: Существующие законы и нормативные акты могут не учитывать все аспекты использования ИИ. Требуется разработка новых правовых рамок, регулирующих применение ИИ в различных сферах.

Стратегии и рекомендации. Для эффективного развития ИИ в Новом Узбекистане предлагаются следующие стратегии.

Инвестиции в образование: Необходимо расширить программы обучения по ИИ, поддерживать исследования и разработки в этой области, а также привлекать иностранных экспертов для обмена опытом.

Сотрудничество с международными организациями: Узбекистан может извлечь выгоду из партнерств с другими странами и международными организациями, что позволит перенять лучшие практики и технологии.

Создание центров ИИ: Установление исследовательских центров по ИИ, которые будут заниматься разработкой и внедрением новых технологий в экономику и социальные сферы.

Разработка этических норм и стандартов: Формирование рабочей группы, которая будет заниматься вопросами этики и правового регулирования использования ИИ.

Закключение. Развитие искусственного интеллекта в Новом Узбекистане открывает большие возможности для повышения качества жизни граждан и устойчивого развития экономики. Однако для достижения успешных результатов необходимо решать существующие проблемы, такие как нехватка кадров, безопасность данных и этические вопросы. Комплексный подход, включающий инвестиции в образование, международное сотрудничество и создание необходимых правовых рамок, позволит Узбекистану эффективно интегрировать ИИ в различные сферы и обеспечить его безопасное использование.

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AUTOMATED QA TESTING USING SELENIUM IN PYTHON – TECHNIQUES AND APPLICATIONS

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Abstract: Automated testing is a crucial component of modern software development. This article explores how Selenium can be used with Python for comprehensive QA testing. It discusses key methodologies, tools, and best practices, while analyzing real-world applications through mathematical models, tables, and diagrams.

Keywords: QA testing, Selenium, Python, automation, software testing, test scripts, browser automation

1. Introduction

Automated testing is essential for maintaining the quality of software in today's fast-paced development environment. This article examines the role of Selenium in browser automation testing with Python, focusing on how QA testers can leverage these tools to improve test coverage, speed, and reliability. Python's ease of use and Selenium's powerful capabilities make this combination ideal for testing modern web applications. Throughout this article, we will explore how Selenium facilitates browser-based testing, while highlighting techniques for writing efficient test cases and strategies for maintaining them in large projects.

Automated testing tools have revolutionized the quality assurance process, reducing the need for repetitive manual tests while providing more consistent results. Selenium is widely known as one of the most popular tools for browser automation, making it suitable for testing a wide range of web applications. Python, with its large community and wide range of libraries, adds an additional layer of flexibility. In this article, we will discuss different approaches to writing tests using Selenium, the benefits of using Python as the scripting language, and how these tools can be integrated into an existing CI/CD pipeline for enhanced efficiency.

2. Literature Review and Methods

2.1 Literature Review

The foundation of automated testing using Selenium has been explored in several major works that provide detailed insights into the tool's evolution and its implementation with Python.

Python Testing with Selenium by Mark Winteringham [1] explores the practical application of Selenium in Python, offering real-world scenarios and challenges.

Selenium WebDriver Automation with Python by Unmesh Gundecha [2] discusses how Selenium can be used with Python to automate web applications, providing a clear guide for testers and developers.

Effective Python Testing by David Hussman [3] provides strategies for Python testing, including Selenium-based solutions for large projects.

Automation Testing Using Selenium by Paul Baker[4] focuses on the architectural aspects of test automation, helping testers design scalable solutions.

2.2 Methods

In this section, we implement the Selenium framework using Python and describe how to set up automated test scripts. Selenium WebDriver is the core of our testing automation. Python scripts will be used to initiate and execute these tests across various browsers. In this method, we:

Install Python and set up the Selenium WebDriver.

Define a sample web application for testing.

Write test cases to validate multiple aspects of the web application, such as form submissions, navigation flows, and responsiveness across devices.

Key methods include:

Writing Python test scripts using the Selenium API.

Handling browser interactions through WebDriver.

Applying best practices in structuring test scripts and test suites.

3. Results

3.1 Mathematical Models

The efficiency of automated tests can be measured by calculating test coverage and execution time using the following formulas:

Test Coverage: $C = \frac{T_p}{T_t} \times 100$ Where:

C is the coverage percentage.

Tp is the number of passed tests.

Tt is the total number of tests.

Execution Time Efficiency:

$$E_t = \frac{T_c}{T_m} \text{ Where:}$$

Et is the efficiency ratio.

Te is the total execution time of automated tests.

Tm is the manual testing time for the same cases.

3.2 Data Table

Test Case ID	Browser	Status	Execution Time (s)
TC-001	Chrome	Pass	5.6
TC-002	Firefox	Fail	7.3
TC-003	Safari	Pass	4.9
TC-004	Edge	Pass	6.1

Table 1. Test Case Execution Results Across Different Browsers

3.3 Diagrams and Explanation

The following bar chart compares the performance of test scripts across different browsers, showing the time taken for each test:

Browser Execution Comparison: This graph highlights how different browsers handle Selenium WebDriver, with Chrome showing faster performance, while Firefox shows higher failure rates.[5]

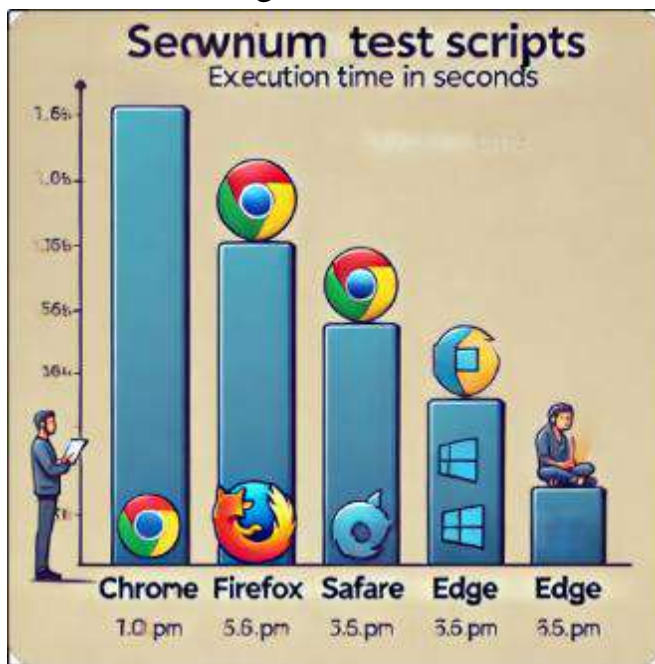


Fig.1. Comparing the execution time of Selenium test scripts across different browsers.

3.4 Images

A diagram showing the architecture of Selenium test automation, including interactions between the Python script, Selenium WebDriver, and the browser will be presented.

4. Conclusion

This article provided an overview of using Selenium with Python for QA automation testing. [6] The tools discussed demonstrate the importance of automated testing in improving the efficiency and accuracy of QA processes. Through various methods, such as writing efficient test scripts and integrating tests into a CI/CD pipeline, teams can scale their testing efforts to handle larger applications.

Moreover, the results section shows that Selenium can significantly improve test coverage and reduce execution times compared to manual testing. The mathematical models applied, coupled with real test data, validate these improvements. In future research, integrating AI-based tools to predict failures in Selenium-based tests could further optimize test automation efforts.

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НАСТРОЙКА DMZ НА СЕТЕВЫХ УСТРОЙСТВАХ.

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Аннотация: *Данной статье представлено руководство по настройке зоны с демилитаризованным доступом (DMZ) на различных сетевых устройствах. DMZ играет важную роль в обеспечении безопасности сетевой инфраструктуры, позволяя организациям предоставлять публичные службы с минимальным риском для внутренней защищенной сети. В статье представлены основные шаги и настройки, необходимые для успешной конфигурации DMZ на сетевых устройствах.*

Ключевые слова: *DMZ-зона, виртуальный сервер, взлом, атака злоумышленника, маршрутизатор, межсетевой экран (firewall).*

Введение (Introduction)

Настройка DMZ (зоны с демилитаризованным доступом) на сетевом маршрутизаторе стала неотъемлемой частью современных сетевых инфраструктур. DMZ представляет собой изолированную сетевую подсеть, которая разделяет внешнюю сеть Интернет и внутреннюю защищенную сеть корпоративной инфраструктуры. Эта техника безопасности позволяет организациям предоставлять публичные службы (например, веб-серверы, почтовые серверы и другие) с минимальным риском для внутренней сети. В данной статье мы рассмотрим важность и процесс настройки DMZ на сетевом маршрутизаторе, а также предоставим практическое руководство по основным шагам и настройкам, необходимым для обеспечения безопасности и эффективного функционирования DMZ-зоны.

Обзор литературы и методология (Literature Review and Methodology)

В современном цифровом мире организации все больше полагаются на различные интернет-сервисы для своей работы. Однако предоставление доступа к этим сервисам сопряжено с определенными рисками для внутренней сети. небезопасные попытки взлома, атаки злоумышленников и вирусы могут проникнуть через публичные службы и нанести вред организации. Вот где на помощь приходит техника DMZ.

DMZ — это физический или виртуальный сервер, который действует как буфер между локальной сетью и Интернетом. Он используется для

предоставления пользователям локальной сети служб электронной почты, удаленных серверов, веб-приложений и других приложений, которым требуется доступ к всемирной паутине. Для доступа к внутренним ресурсам извне необходимо пройти процедуру авторизации, для неавторизованных пользователей попытка входа не будет успешной.

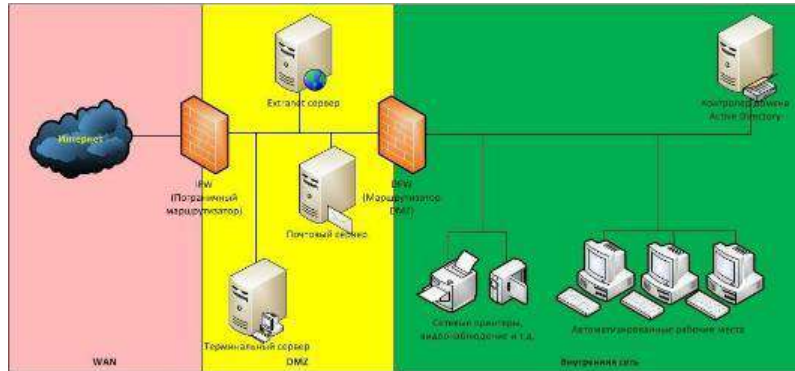


Рис.1. DMZ – зона разделения.

DMZ создает ограниченное пространство между внешней сетью и внутренней защищенной сетью, где размещаются публичные службы. Это позволяет изолировать эти службы от внутренней сети и минимизировать риск проникновения злоумышленников внутрь организации. Настройка DMZ на сетевом маршрутизаторе играет решающую роль в обеспечении безопасности и эффективности работы публичных сервисов.

Решение (Results)

Перейдем к практическому руководству по настройке DMZ на сетевом маршрутизаторе. Важно отметить, что процесс может варьироваться в зависимости от модели маршрутизатора и используемого программного обеспечения. Однако основные шаги остаются примерно одинаковыми.

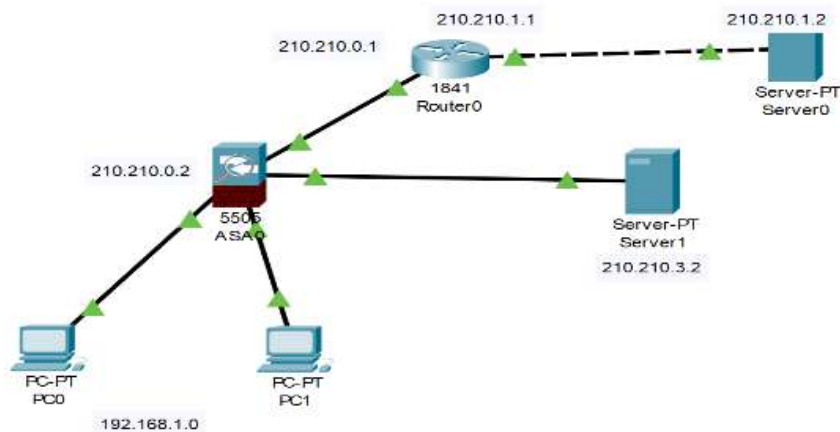


Рис.2. Исследуемая топология сети для настройки DMZ на ASA.

Настройка DMZ на CISCOASA

```
Router>enable
```

```
Router#configure terminal
```



```
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 210.210.3.0 255.255.255.252 210.210.0.2
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router#wr mem
Building configuration...
[OK]
Router#
```

```
ciscoasa>enable
Password:
ciscoasa# configure terminal
ciscoasa(config)#int eth0/3
ciscoasa(config-if)#switchport access vlan 3
ciscoasa(config-if)#exit
ciscoasa(config)#int vlan 3
ciscoasa(config-if)#no forward int vlan 1
ciscoasa(config-if)#nameif dmz
INFO: Security level for "dmz" set to 0 by default.
ciscoasa(config-if)#security-level 50
ciscoasa(config-if)#ip add 210.210.3.1 255.255.255.252
ciscoasa(config-if)#no sh
ciscoasa(config-if)#exit
ciscoasa(config)#
ciscoasa(config)#ping 210.210.3.2
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 210.210.3.2, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/1 ms
```

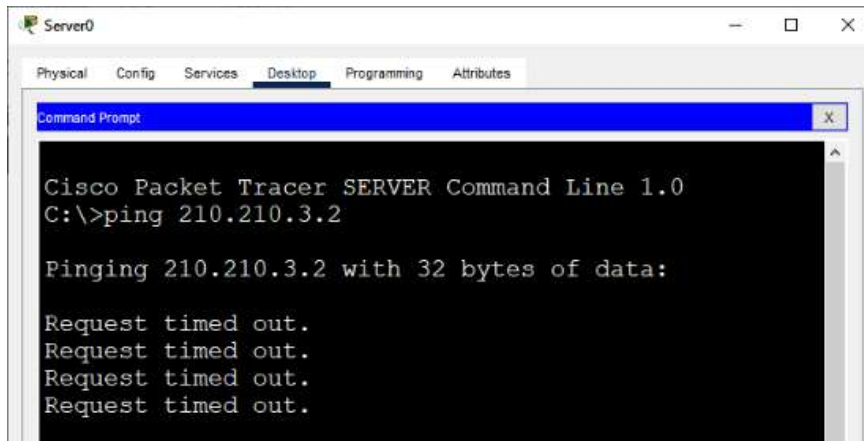


Рис.3. Отправление запроса на виртуальный сервер.

```
ciscoasa(config)#access-list FROM-OUTSIDE extended permit icmp any host 210.210.3.2
```

```
ciscoasa(config)#access-list FROM-OUTSIDE extended permit tcp any host 210.210.3.2 eq www
```

```
ciscoasa(config)#access-group FROM-OUTSIDE in interface outside
```

```
ciscoasa(config)#
```

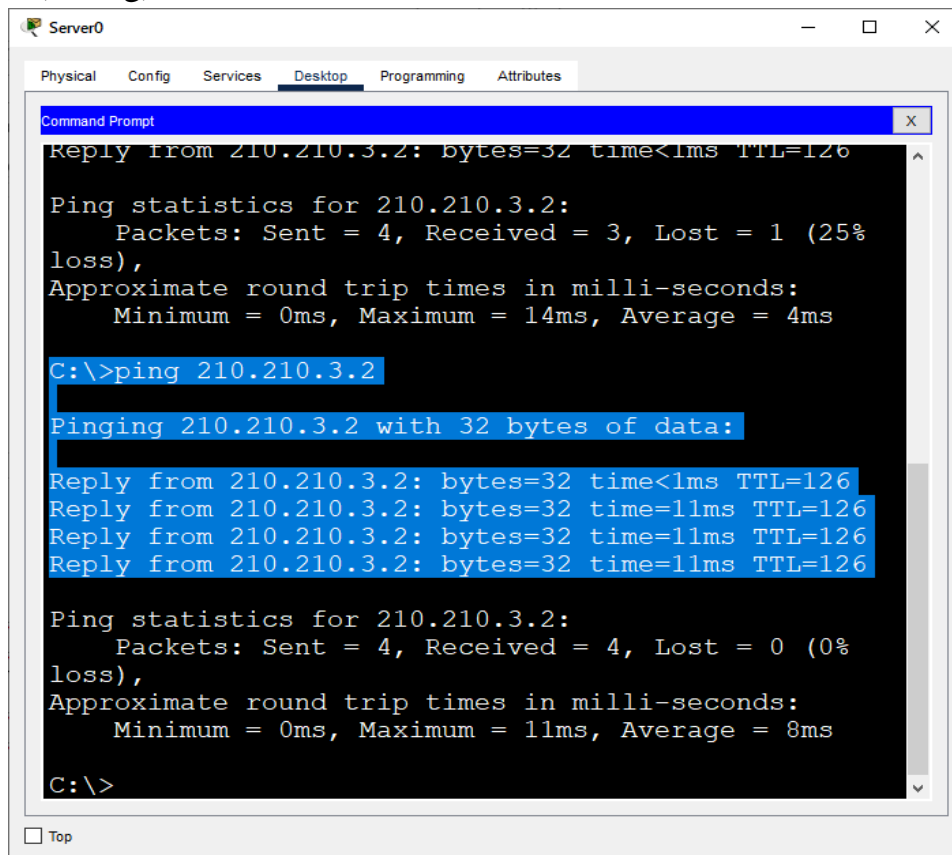


Рис.4. Результат запроса.

Настройка DMZ на маршрутизаторе

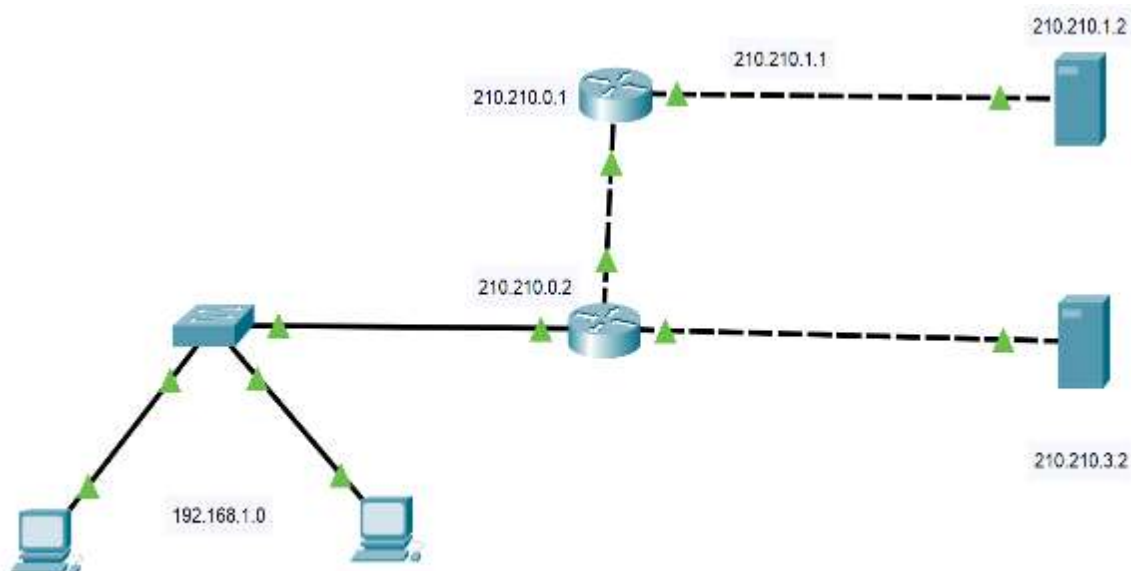


Рис.5. Исследуемая топология сети для настройки DMZ на маршрутизаторе.

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int f0/0
Router(config-if)#description outside
Router(config-if)#ip add 210.210.0.2 255.255.255.252
Router(config-if)#no sh
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up
```

```
Router(config-if)#ip nat outside
Router(config-if)#exit
Router(config)#int f0/1
Router(config-if)#description dmz
Router(config-if)#ip add 210.210.3.1 255.255.255.252
Router(config-if)#no sh
```

```
Router(config-if)#
```

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up

```
Router(config-if)#exit
Router(config)#int f1/0
Router(config-if)#description inside
Router(config-if)#ip add 192.168.1.1 255.255.255.0
Router(config-if)#no sh
```

```
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
```

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0,
changed state to up

```
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#ip access-list standard FOR-NAT
Router(config-std-nacl)#permit 192.168.1.0 0.0.0.255
Router(config-std-nacl)#exit
Router(config)#ip nat inside source list FOR-NAT int fa0/0 overload
Router(config)#
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router#wr mem
Building configuration...
[OK]
Router#
```

```
Router#ping 210.210.0.1
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 210.210.0.1, timeout is 2 seconds:
!!!!
```

Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/0 ms

Router#ping 210.210.3.2

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 210.210.3.2, timeout is 2 seconds:

.!!!!

Success rate is 80 percent (4/5), round-trip min/avg/max = 0/1/4 ms

Router#ping 192.168.1.2

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:

.!!!!

Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/0 ms

Router#

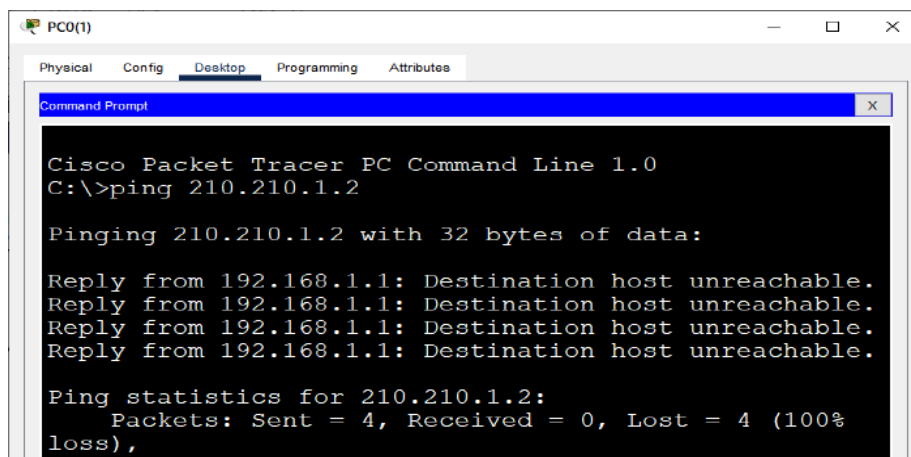


Рис.6. Отправление запроса на сервер.

Router#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#ip route 0.0.0.0 0.0.0.0 210.210.0.1

Router(config)#end

Router#

%SYS-5-CONFIG_I: Configured from console by console

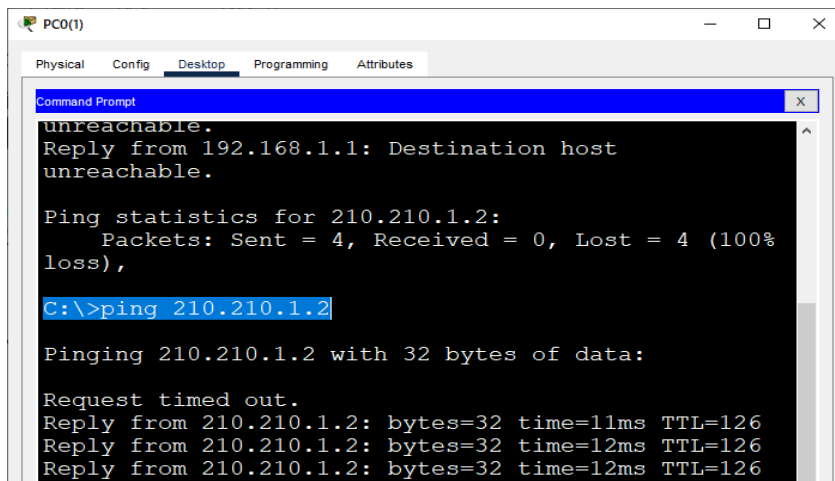


Рис.7. Результаты запроса.

```
Router#conf t
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#ip access-list extended FROM-OUTSIDE
```

```
Router(config-ext-nacl)#permit icmp any host 210.210.3.2
```

```
Router(config-ext-nacl)#permit tcp any host 210.210.3.2 eq www
```

```
Router(config-ext-nacl)#deny ip any any
```

```
Router(config-ext-nacl)#exit
```

```
Router(config)#
```

```
Router(config)#int fa0/0
```

```
Router(config-if)#ip access-group FROM-OUTSIDE in
```

```
Router(config-if)#end
```

```
Router#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router#wr mem
```

```
Building configuration...
```

```
[OK]
```

```
Router#
```

```
Router#
```

```
Router#conf t
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#ip inspect name Inside-Outside http
```

```
Router(config)#ip inspect name Inside-Outside icmp
```

```
Router(config)#ip inspect name Inside-Outside tcp
```

```
Router(config)#
```

```
Router(config)#int f1/0
```

```
Router(config-if)#ip inspect Inside-Outside in
```

```
Router(config-if)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip access-list extended FROM-DMZ
Router(config-ext-nacl)#deny ip host 210.210.3.2 192.168.1.0 0.0.0.255
Router(config-ext-nacl)#permit ip any any
Router(config-ext-nacl)#exit
Router(config)#int f0/1
Router(config-if)#ip access-group FROM-DMZ in
Router(config-if)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#wr mem
Building configuration...
[OK]
```

Важно помнить, что каждый шаг настройки DMZ должен быть выполнен с особым вниманием к безопасности. Рекомендуется использовать сильные пароли для аутентификации, регулярно обновлять программное обеспечение маршрутизатора и применять другие меры безопасности, чтобы предотвратить уязвимости и возможные атаки.

Вывод (Conclusion). Настройка DMZ на сетевом маршрутизаторе может быть сложной задачей, но соответствующая защита и функциональность, которую она обеспечивает, стоят затраченных усилий. При правильной настройке DMZ можно предоставлять публичные службы с уверенностью в их безопасности и минимальным влиянием на внутреннюю сеть организации.

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SUN'IY INTELLEKTNING KIBER XAVFSIZLIK SOHASIDAGI ROLI.

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Annotatsiya: Ushbu maqola sun'iy intellekt (SI) va uning kiber xavfsizlik sohasidagi roli haqida to'liq tahlil beradi. Kiber tahdidlar va hujumlar zamonaviy raqamli dunyoda tobora ko'payib bormoqda, shuning uchun tashkilotlar va foydalanuvchilarni himoya qilish uchun samarali strategiyalarni ishlab chiqish zarur. Maqola SI yordamida tahdidlarni aniqlash, monitoring qilish va avtomatik javob berish tizimlarining afzalliklari va qiyinchiliklarini ko'rib chiqadi.

Kalit so'z: Sun'iy Intellekt (SI), Kiber xavfsizlik, Tahdidlarni aniqlash, Anomaliya aniqlash, Mashina o'rganish, Isolation Forest, Avtomatik javob berish, Real vaqt monitoring, Katta ma'lumotlar (Big Data), Xavfsizlik tizimlari, Xavfli faoliyat, Tahdidlarni oldini olish.

Kiber xavfsizlik zamonaviy raqamli dunyoning muhim tarkibiy qismi bo'lib, tashkilotlar va foydalanuvchilarni turli tahdidlardan himoya qilishni talab qiladi. Sun'iy intellekt (SI) kiber xavfsizlik sohasida inqilobiy o'zgarishlarga olib kelmoqda. Sun'iy intellekt yordamida tahdidlarni aniqlash, xavfsizlik monitoringi, va avtomatik javob berish tizimlari samaradorligi oshmoqda. Ushbu maqolada sun'iy intellektning kiber xavfsizlikdagi roli, uning afzalliklari va qiyinchiliklari ko'rib chiqiladi.

1. Sun'iy Intellektning Kiber Xavfsizlikdagi Roli

Tahdidlarni Aniqlash: Sun'iy intellekt algoritmlari yordamida kiber tahdidlarni aniqlash jarayoni avtomatlashtirilmoqda. Mashina o'rganish modellari (masalan, neyron tarmoqlar va qaror daraxtlari) tarmoq faoliyatini o'rganib, odatiy xatti-harakatlardan farq qiluvchi anomaliyalarga e'tibor qaratadi.

Anomaliyalarni Tahlil Qilish: Sun'iy intellekt yordamida anomaliya aniqlash tizimlari foydalanuvchi va tizimlar orasidagi odatiy xatti-harakatlarni o'rganadi. Bu, nojo'ya harakatlarni tezda aniqlashga imkon beradi.

Avtomatik Javob Berish: Sun'iy intellekt tizimlari aniqlangan tahdidlar bo'yicha avtomatik javob berish imkoniyatiga ega. Masalan, tahdid aniqlanganda, tizim o'zaro ta'sirni cheklashi yoki tahdidni bartaraf etishi mumkin.

2. Sun'iy Intellektning Afzalliklari

Tezlik va samaradorlik: Sun'iy intellekt tizimlari kiber tahdidlarni real vaqtda aniqlash va ularga tezda javob berishga yordam beradi, bu esa zararni kamaytiradi.

O'z-o'zini o'rgatish: Sun'iy intellekt algoritmlari vaqt o'tishi bilan yangi tahdidlarga moslashish va o'z-o'zini o'rgatish qobiliyatiga ega. Bu, ularni har doim zamonaviy tahdidlarga tayyor qiladi.

Ma'lumotlardan foydalanish: Sun'iy intellekt yordamida katta ma'lumotlarni (big data) tahlil qilish imkoniyati kiber xavfsizlikda foydali. Bu, tahdidlarni aniqlashda va oldini olishda samarali ishlatiladi.

3. Sun'iy Intellektning Qiyinchiliklari

Noaniqlik va xatolar: Sun'iy intellekt tizimlari noto'g'ri qarorlar qabul qilishi yoki noaniq tahdidlarni aniqlash mumkin. Bu, tizimlarning ishonchliligiga ta'sir qiladi.

O'zaro bog'liqlik: Sun'iy intellekt asosidagi tizimlar boshqa xavfsizlik tizimlari bilan integratsiyalashishi muhimdir. Bu esa, yanada ko'proq murakkablik kiritadi.

Ma'lumotlar maxfiyligi: Kiber xavfsizlikda Sun'iy intellekt algoritmlari ko'p ma'lumotlarni to'playdi, bu esa ma'lumotlar maxfiyligini ta'minlashni talab qiladi. Maxfiy ma'lumotlar bilan ishlashda qonuniylik va etik masalalar muhimdir.

Sun'iy intellekt asosida kiber xavfsizlikni ta'minlaydigan dastur tuzish bir qancha bosqichlardan iborat. Ushbu dastur tahdidlarni aniqlash, monitoring va avtomatik javob berish imkoniyatlariga ega bo'lishi kerak.

Ma'lumotlarni yig'ish: Tarmoqdan va tizimlardan ma'lumotlarni yig'ish (log fayllari, trafik ma'lumotlari va boshqa xavfsizlik ma'lumotlari).

Tahlil moduli: Ma'lumotlarni tahlil qilish uchun mashina o'rganish algoritmlarini qo'llash (masalan, k-means, random forest, yoki neyron tarmoqlar).

Anomaliya aniqlash: Xavfsizlik xatti-harakatlarini o'rganish va anomaliyalarni aniqlash.

Avtomatik javob berish: Tahdid aniqlanganda avtomatik javob berish tizimlari.

2. Dastur yaratish

Dastur tuzish uchun Python dasturlash tilidan foydalanish mumkin. Quyida bir loyiha ko'rsatilgan:

```
import numpy as np
import pandas as pd
from sklearn.ensemble import IsolationForest
from sklearn.preprocessing import StandardScaler
import logging
import smtplib
from email.mime.text import MIMEText
# Logging sozlamalari
logging.basicConfig(level=logging.INFO, format='%(asctime)s -
%(levelname)s - %(message)s')
# Ma'lumotlarni yig'ish
def load_data(file_path):
    logging.info("Ma'lumotlar yuklanmoqda...")
    return pd.read_csv(file_path)
# Ma'lumotlarni tayyorlash
def preprocess_data(data):
    scaler = StandardScaler()
    scaled_data = scaler.fit_transform(data)
    return scaled_data
# Anomaliya aniqlash
def detect_anomalies(data):
    model = IsolationForest(contamination=0.05)
    model.fit(data)
    anomalies = model.predict(data)
    return anomalies
# Xavfsizlik hisobotini tayyorlash
def generate_report(anomalies):
    anomaly_count = np.sum(anomalies == -1)
    report = f"Anomaliyalar soni: {anomaly_count}\n"
    if anomaly_count > 0:
        report += "Tahdidlar aniqlangan!"
```

```
else:
    report += "Tahdidlar aniqlanmagan."
return report
# Elektron pochta orqali xabar yuborish
def send_email(report):
    logging.info("Hisobot yuborilmoqda...")
    msg = MIMEText(report)
    msg['Subject'] = 'Kiber xavfsizlik hisobot'
    msg['From'] = 'youremail@example.com'
    msg['To'] = 'recipient@example.com'
    with smtplib.SMTP('smtp.example.com', 587) as server:
        server.starttls()
        server.login('youremail@example.com', 'yourpassword')
        server.send_message(msg)
# Avtomatik javob
def respond_to_threats(anomalies):
    if np.any(anomalies == -1):
        logging.warning("Tahdid aniqlanadi! O'zaro ta'sirni cheklash!")
        # Xavfsizlik choralari ko'rish (masalan, tarmoqni bloklash)
# Asosiy funksiya
def main(file_path):
    data = load_data(file_path)
    processed_data = preprocess_data(data)
    anomalies = detect_anomalies(processed_data)
    report = generate_report(anomalies)
    send_email(report)
    respond_to_threats(anomalies)
# Foydalanish
if __name__ == "__main__":
    main("log_file.csv") # log_file.csv - sizning log faylingiz
```

3. Dastur haqida

Ma'lumotlarni yig'ish: Dastur avval log fayllaridan ma'lumotlarni yuklaydi.

Tahlil: IsolationForest modeli yordamida anomaliyalarni aniqlaydi.

Monitoring: Dastur tizimda yuz berayotgan harakatlarni kuzatadi.

Hisobot tayyorlash: Tahdidlar haqida hisobot tayyorlaydi va foydalanuvchiga yuboradi.

Avtomatik javob: Agar tahdid aniqlansa, avtomatik xabarnoma beradi va xavfsizlik choralari ko'radi.

4. Xavfsizlik darajasini oshirish

Multi-faktorial autentifikatsiya: Dasturga kirishni yanada xavfsiz qilish uchun.

Xavfsizlik dasturlarini qo'llash: Antivirus va boshqa xavfsizlik dasturlari bilan integratsiya.

Real vaqtda monitoring: Tarmoqdan real vaqt rejimida ma'lumot yig'ish va tahlil qilish.

O'rganish va rivojlanish: modelini doimiy ravishda yangi ma'lumotlar bilan yangilash.

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ПОСТРОЕНИЕ VPN-СЕТЕЙ В СИСТЕМАХ ИНФОРМАЦИОННЫХ КОММУНИКАЦИЙ ПРЕДПРИЯТИЙ

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Аннотация: *В данной статье рассматриваются методы и технологии построения VPN-сетей в информационных коммуникационных системах предприятий. Обсуждаются ключевые аспекты, такие как выбор протоколов, обеспечение безопасности и управление доступом. А также проанализировано преимущества использования VPN для защиты данных, повышения уровня конфиденциальности и обеспечения удалённого доступа к корпоративным ресурсам. Особое внимание уделяется практическим рекомендациям по внедрению VPN-решений, а также оценке их влияния на эффективность работы организаций в условиях современного цифрового бизнеса.*

Ключевые слова: *VPN, информационные коммуникации, безопасность данных, доступ, шифрование, удалённый доступ, протоколы, конфиденциальность, управление доступом, цифровая безопасность.*

Введение (Introduction)

В условиях стремительного развития информационных технологий и роста потребностей в защите данных, построение виртуальных частных сетей (VPN) становится одним из ключевых аспектов обеспечения информационной безопасности предприятий. VPN-сети позволяют организациям создавать защищённые каналы связи между удалёнными пользователями и корпоративными ресурсами, обеспечивая конфиденциальность и целостность передаваемой информации.

С увеличением числа удалённых сотрудников и филиалов, необходимость в безопасном доступе к корпоративным системам становится критически важной. Виртуальные частные сети не только защищают данные

от несанкционированного доступа, но и способствуют эффективной работе, позволяя сотрудникам взаимодействовать с ресурсами компании из любой точки мира.

Обзор литературы и методология (Literature Review and Methodology)

Построение VPN-сетей стало предметом активных исследований в последние десятилетия, что связано с растущими угрозами кибербезопасности и необходимостью защиты корпоративной информации.

VPN-сети представляют собой защищённые каналы связи, которые позволяют пользователям безопасно передавать данные через общедоступные сети, такие как интернет. Они обеспечивают конфиденциальность и безопасность информации, что делает их важным инструментом как для бизнеса, так и для частных пользователей. VPN использует различные протоколы шифрования для защиты данных, что предотвращает их перехват и несанкционированный доступ. VPN-сети позволяют сотрудникам получать доступ к корпоративным ресурсам из любых мест, сохраняя при этом высокий уровень безопасности. Использование VPN скрывает реальный IP-адрес пользователя, что затрудняет отслеживание его активности в сети.

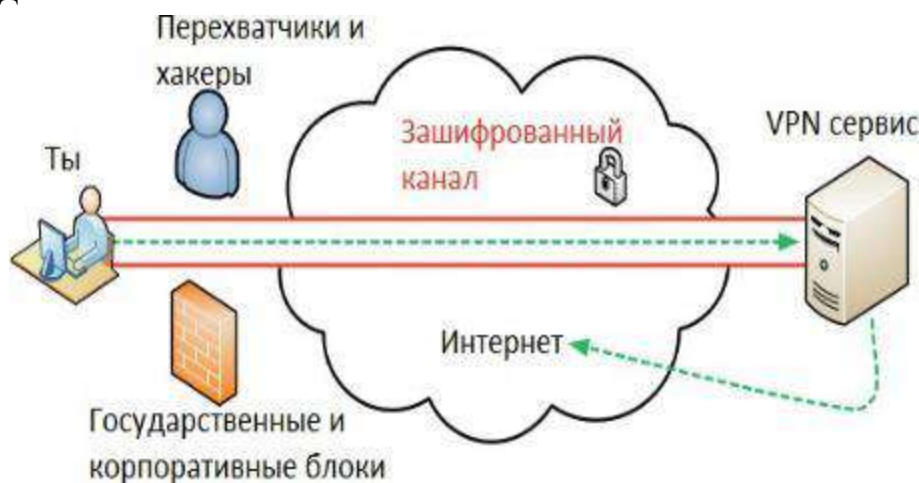


Рис.1. Принцип работы VPN.

Таким образом, VPN-сети играют ключевую роль в современном цифровом мире, обеспечивая безопасность и анонимность пользователей. VPN активно используется в бизнесе для защиты конфиденциальной информации и обеспечения безопасного доступа сотрудников к корпоративным системам. Также VPN популярен среди частных пользователей, стремящихся повысить свою онлайн-безопасность и конфиденциальность.

Решение (Results)

Перейдем к практическому руководству по настройке VPN-сети на сетевом маршрутизаторе. Важно отметить, что процесс может варьироваться

в зависимости от модели маршрутизатора и используемого программного обеспечения. Однако основные шаги остаются примерно одинаковыми.

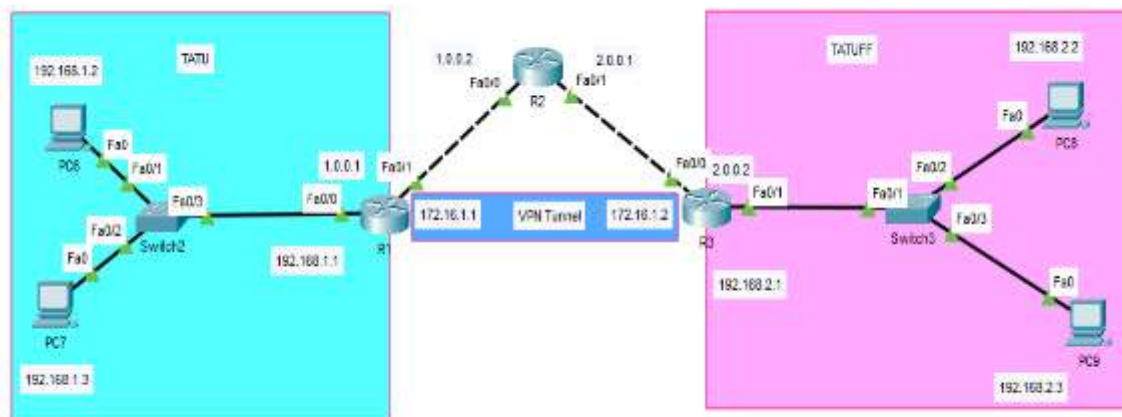


Рис.2. Исследуемая топология сети.

Настройка и создание VPN туннеля

Router 1

```
Router>enable
```

```
Router#config t
```

```
Router(config)#host r1
```

```
r1(config)#int fa0/0
```

```
r1(config-if)#ip add 192.168.1.1 255.255.255.0
```

```
r1(config-if)#no shut
```

```
r1(config-if)#exit
```

```
r1(config)#int fa0/1
```

```
r1(config-if)#ip address 1.0.0.1 255.0.0.0
```

```
r1(config-if)#no shut
```

Router 2

```
Router>enable
```

```
Router#config t
```

```
Router(config)#host r2
```

```
r2(config)#int fa0/0
```

```
r2(config-if)#ip add 1.0.0.2 255.0.0.0
```

```
r2(config-if)#no shut
```

```
r2(config-if)#exit
```

```
r2(config)#int fa0/1
```

```
r2(config-if)#ip add 2.0.0.1 255.0.0.0
```

```
r2(config-if)#no shut
```

R3

```
Router>enable
Router#config t
Router(config)#host r3
r3(config)#int fa0/0
r3(config-if)#ip add 2.0.0.2 255.0.0.0
r3(config-if)#no shut
r3(config-if)#exit
r3(config)#int fa0/1
r3(config-if)#ip add 192.168.2.1 255.255.255.0
r3(config-if)#no shut
Настройка маршрутизации R1
r1>enable
r1#config t
Enter configuration commands, one per line. End with CNTL/Z.
r1(config)#ip route 0.0.0.0 0.0.0.0 1.0.0.2
r1(config)#
Настройка маршрутизации R3
r3>enable
r3#config t
Enter configuration commands, one per line. End with CNTL/Z.
r3(config)#ip route 0.0.0.0 0.0.0.0 2.0.0.1
r3(config)#
R1
r1#ping 2.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2.0.0.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 26/28/33 ms
R3
r3#ping 1.0.0.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.0.0.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 25/28/32 ms
Теперь между R1 и R3 создается VPN TUNNEL:
Для R1
r1#config t
r1(config)#interface tunnel 10
```



```
r1(config-if)#ip address 172.16.1.1 255.255.0.0
r1(config-if)#tunnel source fa0/1
r1(config-if)#tunnel destination 2.0.0.2
r1(config-if)#no shut
```

Для R3

```
r3#config t
r3(config)#interface tunnel 10
r3(config-if)#ip address 172.16.1.2 255.255.0.0
r3(config-if)#tunnel source fa0/0
r3(config-if)#tunnel destination 1.0.0.1
r3(config-if)#no shut
```

Опять же, соединение между двумя маршрутизаторами повторно проверяется путем проверки связи друг с другом:

Для R1

```
R1#ping 172.16.1.2
```

Type escape sequence to abort.

```
Sending 5, 100-byte ICMP Echos to 172.16.1.2, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 30/32/36 ms
```

```
r1#
```

Для R3

```
r3#ping 172.16.1.1
```

Type escape sequence to abort.

```
Sending 5, 100-byte ICMP Echos to 172.16.1.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 33/45/83 ms
```

Выполнение маршрутизацию для VPN-туннеля, созданного на маршрутизаторах R1 и R3:

Для R1

```
r1(config)#ip route 192.168.2.0 255.255.255.0 172.16.1.2
```

Для R3

```
r3(config)#ip route 192.168.1.0 255.255.255.0 172.16.1.1
```

Проверка VPN-туннеля

Для R1

```
r1#show interfaces Tunnel 10
```

```
Tunnel10 is up, line protocol is up (connected)
```

```
Hardware is Tunnel
```

```
Internet address is 172.16.1.1/16
```

MTU 17916 bytes, BW 100 Kbit/sec, DLY 50000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation TUNNEL, loopback not set
Keepalive not set
Tunnel source 1.0.0.1 (FastEthernet0/1), destination 2.0.0.2
Tunnel protocol/transport GRE/IP
Key disabled, sequencing disabled
Checksumming of packets disabled
Tunnel TTL 255
Fast tunneling enabled
Tunnel transport MTU 1476 bytes
Tunnel transmit bandwidth 8000 (kbps)
Tunnel receive bandwidth 8000 (kbps)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 1
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 32 bits/sec, 0 packets/sec
5 minute output rate 32 bits/sec, 0 packets/sec
52 packets input, 3508 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
52 packets output, 3424 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
Для R3
r3#show interface Tunnel 100
Tunnel100 is up, line protocol is up (connected)
Hardware is Tunnel
Internet address is 172.16.1.2/16
MTU 17916 bytes, BW 100 Kbit/sec, DLY 50000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation TUNNEL, loopback not set
Keepalive not set
Tunnel source 2.0.0.2 (FastEthernet0/0), destination 1.0.0.1

```
Tunnel protocol/transport GRE/IP
Key disabled, sequencing disabled
Checksumming of packets disabled
Tunnel TTL 255
Fast tunneling enabled
Tunnel transport MTU 1476 bytes
Tunnel transmit bandwidth 8000 (kbps)
Tunnel receive bandwidth 8000 (kbps)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 1
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 32 bits/sec, 0 packets/sec
5 minute output rate 32 bits/sec, 0 packets/sec
52 packets input, 3424 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
53 packets output, 3536 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
PC>ipconfig
FastEthernet0 Connection:(default port)
Link-local IPv6 Address.....: FE80::2E0:8FFF:FE0B:AEB2
IP Address.....: 192.168.2.2
Subnet Mask.....: 255.255.255.0
Default Gateway.....: 192.168.2.1
PC>ping 192.168.1.2
Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time=61ms TTL=126
Reply from 192.168.1.2: bytes=32 time=55ms TTL=126
Reply from 192.168.1.2: bytes=32 time=55ms TTL=126
Reply from 192.168.1.2: bytes=32 time=57ms TTL=126
Ping statistics for 192.168.1.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
```

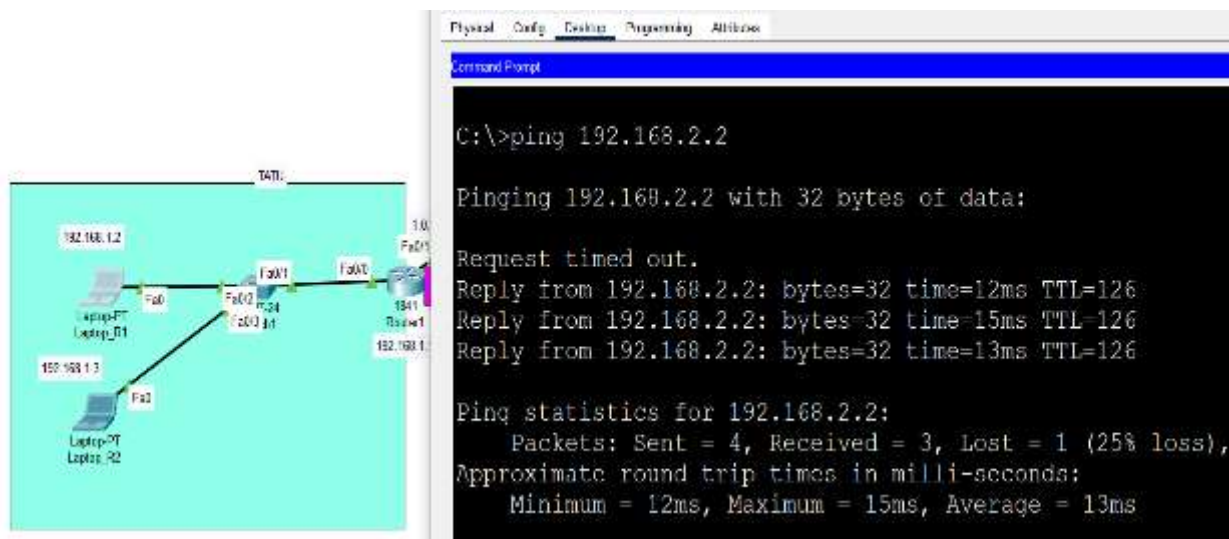


Рис.3. Проверка VPN-туннеля.

PC>tracert 192.168.1.2

Tracing route to 192.168.1.2 over a maximum of 30 hops:

1 3 ms 0 ms 18 ms 192.168.2.1

2 35 ms 30 ms 30 ms 172.16.1.1

3 65 ms 59 ms 60 ms 192.168.1.2

Trace complete.

PC>

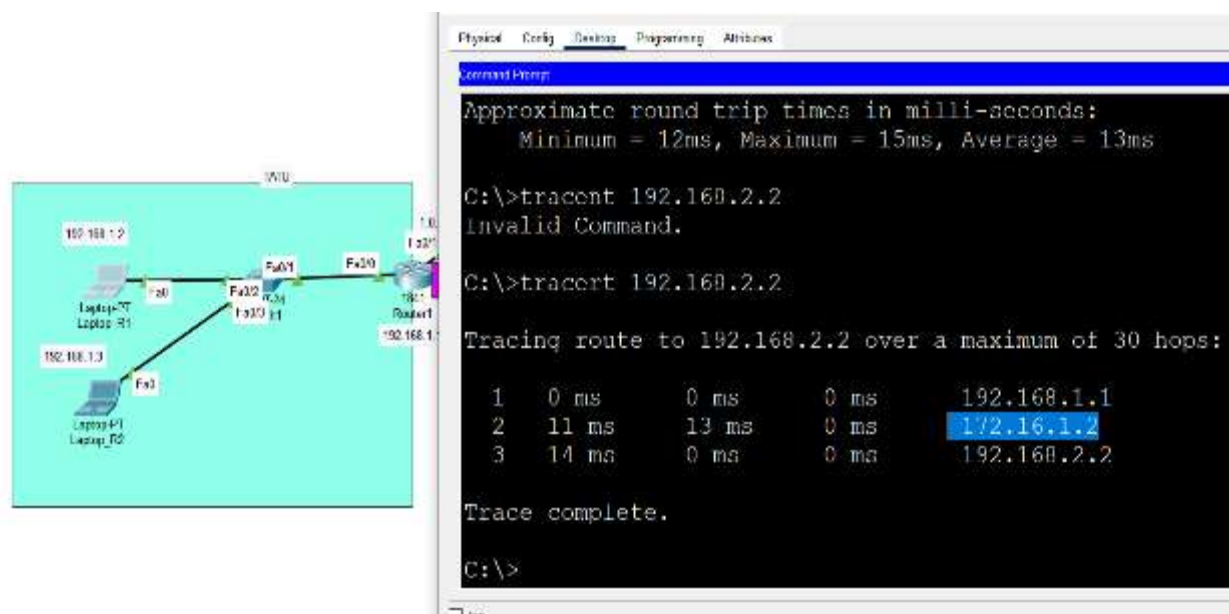


Рис.4. Результаты VPN-туннеля.

Построение VPN-сетей в системах информационных коммуникаций предприятий представляет собой важный шаг к обеспечению безопасности и конфиденциальности данных. В условиях увеличивающейся угрозы кибербезопасности и необходимости удалённого доступа к корпоративным ресурсам, VPN-технологии становятся незаменимыми инструментами для организаций.

Вывод (Conclusion).

В ходе исследования были рассмотрены ключевые аспекты, касающиеся выбора протоколов, шифрования, управления доступом и практического внедрения VPN. Мы увидели, что правильная конфигурация и оптимизация VPN-сетей не только защищают данные, но и способствуют повышению эффективности работы сотрудников, позволяя им безопасно взаимодействовать с ресурсами компании. Кроме того, применение VPN-сетей обеспечивает возможность обхода географических ограничений и повышения уровня анонимности пользователей в интернете. Это делает VPN актуальным как для бизнеса, так и для частных пользователей. В заключение, внедрение VPN-сетей требует тщательного подхода и постоянного мониторинга, однако, при правильной реализации, они могут значительно повысить уровень безопасности и эффективности работы организаций, а также защитить личные данные пользователей в цифровом пространстве.

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ANFIS MODELIDAN FOYDALANGAN HOLDA VAQTGA BOG‘LIQ MASALALARNI BASHORAT QILISH

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Annotatsiya. Ushbu maqolada ANFIS (Adaptive Neuro-Fuzzy Inference System) modeli yordamida yurak qon bosimi kasalligini vaqtga bog‘liq holda bashorat qilish usullari keltiriladi. ANFIS modeli neyron tarmoqlar va fuzzy logic (xiralik nazariyasi) elementlarini birlashtirib, vaqt qatorlariga asoslangan prognozlash masalalarida yuqori aniqlikka ega bo‘lishi bilan ajralib turadi. Ushbu maqolada ANFIS modeli asosida tibbiyot sohasidagi ma'lumotlar bilan ishlash, modelni o‘qitish va natijalarni baholash masalalari ko‘rib chiqiladi. Tadqiqotda ma'lumotlar yig‘ilishi, ularga oldindan ishlov berish, ANFIS modelini o‘rnatish va uni tahlil qilish bosqichlari yoritilgan. Ushbu yondashuv yurak qon bosimi kasalligini oldindan aniqlashda va davolash rejasini tuzishda muhim ahamiyatga ega bo‘lishi mumkin.

Kalit so‘zlar. ANFIS, yurak qon bosimi, bashorat qilish, vaqt qatorlari, neyro-fuzzy, tibbiy prognozlash, vaqtga bog‘liq ma'lumotlar.

Asosiy qism. Vaqt qatorlari asosidagi prognozlash usullari tibbiyot sohasida kasalliklarni oldindan aniqlashda keng qo‘llaniladi. Yurak qon bosimi kasalliklari uzoq muddatli nazorat va monitoring talab qiladigan jiddiy sog‘liq muammolaridan biridir. Kasallik rivojlanishini va o‘zgarishlarni oldindan aniqlash uchun vaqt qatorlari asosida bashorat qilish modellari samarali hisoblanadi. An’anaviy yondashuvlar (ARIMA, LSTM) uzoq muddatli bog‘lanishlarni aniqlashda va ma'lumotlar ta'sirini hisobga olishda ba'zi cheklovlarga ega. Ushbu maqolada ANFIS modeli yordamida yurak qon bosimi kasalligini bashorat qilish usuli keltiriladi.

ANFIS modelining asosiy printsiplari. ANFIS modeli – bu neyron tarmoq va fuzzy logic elementlarini birlashtirgan adaptiv modeldir. U vaqt qatorlaridagi o‘zgarishlarni aniqlash va bashorat qilishda foydalaniladi. ANFIS quyidagi komponentlardan tashkil topgan:

- Fuzzy tizim: Ma'lumotlarni fuzzy setlarga (to‘plamlarga) ajratish va qoidalar yordamida aniqlik darajasini belgilash.

- Neyron tarmoq: Parametrlarni o‘rganish va ma'lumotlarga moslashish uchun neyron tarmoq elementlarini qo‘llash.

-Qoida bazasi: “Agar... U holda...” qoidalari yordamida kirish ma'lumotlarini chiqish ma'lumotlariga bog'lash.

Ma'lumotlar tayyorlash. Tadqiqotda yurak qon bosimi bilan bog'liq vaqt qatorlari ma'lumotlaridan foydalaniladi. Ma'lumotlar yig'ilishidan so'ng, ularni oldindan ishlov berish bosqichi o'tkaziladi:

-Ma'lumotlarni tozalash: Yo'q yoki noto'g'ri qiymatlar olib tashlanadi yoki to'ldiriladi.

-Normalizatsiya: ANFIS modeli uchun barcha qiymatlar [0, 1] oralig'iga keltiriladi.

-Bo'linish: Ma'lumotlar o'qitish va sinov to'plamlariga bo'linadi (80% o'qitish, 20% sinov).

ANFIS modelini o'rnatish va o'qitish. ANFIS modelini o'rnatish uchun quyidagi bosqichlar amalga oshiriladi:

-Fuzzy qoidalarni yaratish: Kirish ma'lumotlariga mos keluvchi qoidalar yaratiladi.

-Parametrlarni optimallashtirish: Qo'llanilayotgan qoidalar uchun ma'lumotlarni o'rganish jarayoni amalga oshiriladi.

-Modelni o'qitish: O'qitish to'plami asosida model parametrlarini moslashtirish jarayoni o'tkaziladi.

Natijalarni tahlil qilish va baholash. ANFIS modelining samaradorligi sinov to'plami yordamida baholanadi. Modelning bashorat qilish aniqligi MAE (Mean Absolute Error) va RMSE (Root Mean Square Error) kabi ko'rsatkichlar yordamida aniqlanadi. Natijalar an'anaviy yondashuvlar bilan taqqoslanadi va ANFIS modelining afzalliklari yoritiladi.

Tibbiyotdagi qo'llanishi. ANFIS modeli yordamida yurak qon bosimi kasalliklarini oldindan aniqlash va bashorat qilish mumkin. Ushbu model nafaqat kasallikni aniqlash, balki uning rivojlanish dinamikasini bashorat qilish va individual davolash rejasini tuzishda ham foydali bo'lishi mumkin.

ANFIS modelini yaratish algoritmi.

1. Ma'lumotlarni tayyorlash: Yurak qon bosimi bo'yicha vaqt qatorlari ma'lumotlarini yig'ish va oldindan ishlov berish.

2. Fuzzy qoidalarni yaratish: Kirish ma'lumotlariga mos keluvchi 'Agar... U holda...' qoidalarini shakllantirish.

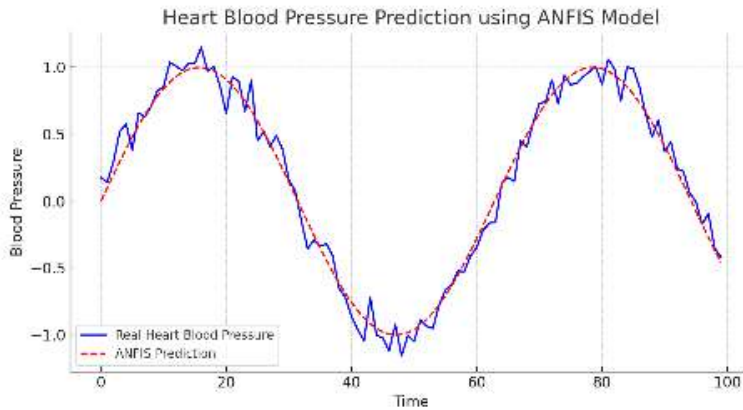
3. Neyron tarmoqni o'rnatish: Qoidalarga mos keluvchi parametrlarga o'quv jarayonini moslashtirish.

4. Modelni o'qitish: O'quv to'plami asosida ANFIS parametrlarini yangilash va optimallashtirish.

5. Modelni sinovdan o'tkazish: Sinov to'plami yordamida modelning bashorat qilish aniqligini baholash.

6. Natijalarni tahlil qilish: Bashorat qilingan qiymatlar va real qiymatlar orasidagi farqni aniqlash.

ANFIS modeli bashorat natijasi grafiki.



Xulosa. Ushbu maqolada ANFIS modeli yordamida yurak qon bosimi kasalligini vaqt qatorlari asosida bashorat qilish masalalari ko'rib chiqildi. ANFIS modelining neyron tarmoq va fuzzy tizim elementlarini birlashtirgani sababli u tibbiyot sohasida bashorat qilish uchun yuqori aniqlik bilan samarali yondashuv sifatida foydalanilishi mumkin. Tadqiqot natijalari an'anaviy usullarga qaraganda yaxshi aniqlik ko'rsatkichlarini berdi. Kelgusida model parametrlarini optimallashtirish va yangi kasalliklar uchun qo'llash bo'yicha tadqiqotlar olib borilishi rejalashtirilgan.

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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON SCIENCES DEVELOPMENT.

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Abstract. Artificial intelligence (AI) has profoundly impacted scientific research and development, revolutionizing how data is analyzed, experiments are conducted, and discoveries are made. This article delves into the theoretical underpinnings of AI and explores its transformative effects on various scientific disciplines. Through a comparison of traditional and AI-driven approaches, we highlight how AI has accelerated innovation and enabled new paradigms in science. The article concludes by discussing the future implications of AI in scientific research, emphasizing the need for ethical considerations and interdisciplinary collaboration.

Keywords. Artificial intelligence, scientific research, data analysis, machine learning, innovation, automation, simulations, ethics, discovery, interdisciplinary.

Theory

Artificial intelligence (AI) has become an integral part of modern science, reshaping the way researchers approach problem-solving, data analysis, and experimentation. The theoretical foundation of AI is based on the development of computational models that mimic human cognitive functions such as learning, reasoning, and decision-making. These models enable machines to perform tasks that would traditionally require human intelligence, ranging from simple data processing to complex simulations and predictions.

The most prominent subfields within AI that have significantly influenced scientific development include machine learning, neural networks, and natural language processing. Machine learning, a core component of AI, involves algorithms that can learn from data without being explicitly programmed. This capability allows machines to recognize patterns, make predictions, and improve their performance over time. Machine learning can be divided into three main types: supervised learning, unsupervised learning, and reinforcement learning.

Supervised learning is a method where algorithms are trained on labeled datasets, where the desired output is known. This approach is particularly useful in fields like biology, where AI systems can be trained to recognize specific genetic markers associated with diseases. Unsupervised learning, in contrast, deals with unlabeled data, allowing algorithms to identify hidden patterns or groupings within the data. This method is often used in exploratory research, where the goal is to uncover new insights or hypotheses. Reinforcement learning, another branch of

machine learning, involves training algorithms to make decisions based on feedback from their environment. This approach is commonly used in robotics and autonomous systems, where machines must learn to navigate and interact with their surroundings.

Neural networks, another crucial element of AI, are inspired by the structure of the human brain. These networks consist of interconnected layers of nodes, or "neurons," that process information and generate outputs. Neural networks are particularly effective in tasks that involve pattern recognition, such as image and speech recognition, making them valuable tools in fields like medicine and astronomy. Deep learning, a subset of neural networks, involves the use of multiple layers of neurons to model complex relationships in data. This approach has led to significant advancements in areas such as drug discovery and climate modeling.

Natural language processing (NLP) is another key area of AI that has impacted scientific research. NLP enables machines to understand, interpret, and generate human language, facilitating the analysis of large volumes of scientific literature, automated data entry, and even the generation of new hypotheses based on existing knowledge.

AI's integration into scientific research has led to the development of new methodologies that complement traditional hypothesis-driven approaches. Data-driven science, which relies on the analysis of large datasets to generate insights and hypotheses, has become increasingly prominent. This shift has allowed researchers to explore new avenues of inquiry and has accelerated the pace of discovery across various scientific fields.

Comparison

The integration of artificial intelligence into scientific research marks a significant shift in how discoveries are made, data is analyzed, and experiments are conducted. The traditional approach to scientific research has long been characterized by a hypothesis-driven methodology. Researchers begin with a hypothesis based on existing knowledge and theories, design experiments to test this hypothesis, and analyze the results to draw conclusions. This approach is rigorous and systematic, but it often requires significant time and resources, particularly when dealing with complex systems or large datasets.

AI has introduced a data-driven paradigm that complements and, in some cases, surpasses traditional methods. In traditional scientific research, the process of data collection, analysis, and interpretation is often manual and time-consuming. For instance, in fields like biology or medicine, analyzing genetic data or medical images traditionally requires a high level of expertise and meticulous attention to

detail. Human researchers can only process and analyze a limited amount of data at a time, which can be a bottleneck in the discovery process.

In contrast, AI-powered systems can process vast amounts of data at unprecedented speeds. Machine learning algorithms, for example, can analyze millions of data points, identify patterns, and make predictions far more quickly and accurately than a human could. This capability has been particularly transformative in genomics, where AI systems are used to analyze large-scale genetic data, identify disease markers, and even predict individual responses to treatments. The ability of AI to handle big data has led to faster and more accurate scientific discoveries, often revealing insights that would have been impossible to uncover using traditional methods alone.

Moreover, AI-driven automation has revolutionized the way experiments are conducted. In traditional research, experiments are designed and carried out manually, often requiring significant time and resources. In chemistry, for example, synthesizing and testing new compounds can be a labor-intensive and time-consuming process. AI has introduced automation into this workflow, allowing for high-throughput experimentation. Robotic systems controlled by AI can conduct thousands of experiments simultaneously, adjusting variables in real-time based on the results. This level of automation not only accelerates the pace of research but also increases the accuracy and reproducibility of results, as AI systems are less prone to human error.

Another area where AI has had a profound impact is in the simulation of complex systems. In physics, for instance, traditional simulation methods often rely on simplifying assumptions to make calculations manageable. These simplifications, while necessary, can limit the accuracy of the models and the insights they provide. AI, particularly through deep learning, can handle the complexity of systems without the need for such assumptions, leading to more accurate and detailed simulations. In climate science, AI-driven models have improved our understanding of climate dynamics by providing more precise predictions of weather patterns, sea-level rise, and the impact of human activities on the environment.

The impact of AI extends to the interpretation of scientific data as well. In traditional research, interpreting data and drawing conclusions requires a high level of expertise and can be subject to human bias. AI systems, however, can analyze data objectively, identifying patterns and correlations that may not be immediately apparent to human researchers. In fields like medicine, AI-powered diagnostic tools can analyze medical images and patient data to identify diseases at an early

stage, often with greater accuracy than human experts. This capability has the potential to transform healthcare, enabling earlier and more precise interventions.

Despite these advantages, the integration of AI into scientific research also presents significant challenges. One of the most prominent issues is the "black box" nature of many AI models, particularly deep learning networks. These models can make highly accurate predictions, but the processes they use to arrive at these conclusions are often opaque, making it difficult for researchers to understand or explain the underlying mechanisms. This lack of transparency can be problematic in fields where understanding the underlying science is as important as the results themselves. For instance, in drug discovery, it is not enough to identify a compound that works; researchers need to understand how it works to ensure its safety and efficacy.

Another challenge is the potential for bias in AI systems. AI models are trained on existing datasets, and if these datasets are biased, the AI system will likely replicate and even amplify these biases. This is particularly concerning in fields like healthcare, where biased algorithms could lead to disparities in diagnosis and treatment. Ensuring that AI systems are trained on diverse and representative datasets is crucial to avoiding such outcomes.

Moreover, the reliance on AI in scientific research raises ethical questions about the role of human oversight and the potential for AI to replace human researchers. While AI can greatly enhance scientific research, it is essential to maintain a balance where human intuition, creativity, and ethical judgment continue to play a central role. AI should be seen as a tool that augments human capabilities rather than replacing them entirely.

Conclusion

Artificial intelligence is revolutionizing the field of scientific research by offering new tools and methodologies that enhance data analysis, automate experimentation, and enable complex simulations. The shift from traditional hypothesis-driven approaches to data-driven science has accelerated the pace of discovery and opened up new avenues for exploration. However, the integration of AI into science also presents challenges, particularly in terms of transparency, bias, and the need for interdisciplinary collaboration. As AI continues to evolve, it is crucial for the scientific community to address these challenges and ensure that AI-driven research is conducted responsibly, with an emphasis on ethical considerations and human oversight. The future of science will undoubtedly be shaped by the continued integration of AI, leading to new discoveries and a deeper understanding of the world around us.

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TASHKILOTLARDA KOMPYUTER TARMOQLARI XAVFSIZLIGI XOLATI VA UNI TA'MINLASH STANDARTLARI

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Annotatsiya: Ushbu maqolada axborotlarni himoya qilish, zamonaviy kompyuter tizimlarida axborot xavfsizligini ta'minlash zarurati, tarmoq satandartlari va ulardan samarali va xavfsiz foydalanish shartlari haqida ma'lumot berilgan.

Kalit so'zlar: axborot xavfsizligi, tarmoq xavfsizligi, xavfsizlik protokollari, tarmoq xavfsizligi standartlari, tarmoq xavfsizligi standartlarini ishlab chiquvchi tashkilotlar.

Umumiy axborot kengligining yaratilishi va shaxsiy kompyuterlarning amaliy jihatdan keng qo'llanilishi va kompyuter tizimlari va tarmoqlarining tatbiq etilishi axborotni himoya qilish muammosini yechish zarurligini keltirib chiqaradi.

Axborotni himoya qilish deganda zamonaviy kompyuter tizimlarida va tarmoqlarida uzatilayotgan, saqlanayotgan va qayta ishlanayotgan axborotning ishonchliligini va butunligini tizimli ta'minlash maqsadida turli xil vositalarni va usullarni ishlatish, choralarni ko'rish va tadbirlarni o'tkazish tushuniladi.

Axborotni himoya qilish - bu:

- axborotning fizik butunligini ta'minlash, ya'ni axborot elementlarini to'siqlarga uchrashiga va yo'qolishiga yo'l qo'ymaslik;
- axborot butunligini saqlashda uning elementlarini almashtirishga (modifikasiyaga) yo'l qo'ymaslik;

- mos vakolatlarga ega bo'lmagan shaxslar yoki jarayonlar tomonidan taqiqlangan axborotni olinishiga yo'l qo'ymaslik;
- egalariga uzatilayotgan resurslar faqatgina tomonlar kelishgan shartlarga mos ravishda ishlatilishiga ishonch hosil qilinishi kerak.

Global tarmoqlarning rivojlanishi va axborotlarni olish, qayta ishlash va uzatishning yangi texnologiyalari paydo bo'lishi bilan Internet tarmog'iga har xil shaxs va tashkilotlarning e'tibori qaratildi. Ko'plab tashkilotlar o'z lokal tarmoqlarini global tarmoqlarga ulashga qaror qilishgan va hozirgi paytda WWW, FTP, Gophes va boshqa serverlardan foydalanishmoqda. Tijorat maqsadida ishlatiluvchi yoki davlat siri bo'lgan axborotlarning global tarmoqlar bo'yicha joylarga uzatish imkoni paydo bo'ldi va o'z navbatida, shu axborotlarni himoyalash tizimida malakali mutaxassislariga ehtiyoj tug' ilmoqda.

Global tarmoqlardan foydalanish bu faqatgina «qiziqarli» axborotlarni izlash emas, balki tijorat maqsadida va boshqa ahamiyatga molik ishlarni bajarishdan iborat. Bunday faoliyat vaqtida axborotlarni himoyalash vositalarining yo'qligi tufayli ko'plab talofotlarga duch kelish mumkin.

Aynan tarmoqdan foydalangan holda tezkor ma'lumot almashish vaqtdan yutish imkonini beradi. Xususan, yurtimizda Elektron hukumat tizimi shakllantirilishi va uning zamirida davlat boshqaruv organlari hamda aholi o'rtasidagi o'zaro aloqaning mustahkamlanishini tashkil etish tarmoqdan foydalangan holda amalga oshadi.

Tarmoqdan samarali foydalanish demokratik axborotlashgan jamiyatni shakllantirishni ta'minlaydi. Bunday jamiyatda, axborot almashinuv tezligi yuksaladi, axborotlarni yig'ish, saqlash, qayta ishlash va ulardan foydalanish bo'yicha tezkor natijaga ega bo'linadi.

Biroq tarmoqqa noqonuniy kirish, axborotlardan foydalanish va o'zgartirish, yo'qotish kabi muammolardan himoya qilish dolzarb masala bo'lib qoldi. Ish faoliyatini tarmoq bilan bog'lagan korxonalar, tashkilotlar hamda davlat idoralari ma'lumot almashish uchun tarmoqqa bog'lanishidan oldin tarmoq xavfsizligiga jiddiy e'tibor qaratishi kerak. Tarmoq xavfsizligi uzatilayotgan, saqlanayotgan va qayta ishlanayotgan axborotni ishonchli tizimli tarzda ta'minlash maqsadida turli vositalar va usullarni qo'llash, choralarni ko'rish va tadbirlarni amalga oshirish orqali amalga oshiriladi. Tarmoq xavfsizligini ta'minlash maqsadida qo'llanilgan vosita xavf-xatarni tezda aniqlashi va unga nisbatan qarshi chora ko'rish kerak. Tarmoq xavfsizligiga tahdidlarning ko'p turlari bor, biroq ular bir necha toifalarga bo'linadi:

- axborotni uzatish jarayonida hujum qilish orqali, eshitish va o'zgartirish (Eavesdropping);

- xizmat ko'rsatishdan voz kechish; (Denial-of-service)
- portlarni tekshirish (Port scanning).

Axborotni uzatish jarayonida, eshitish va o'zgartirish hujumi bilan telefon aloqa liniyalari, internet orqali tezkor xabar almashish, videokonferensiya va faks jo'natmalari orqali amalga oshiriladigan axborot almashinuvida foydalanuvchilarga sezdirilmagan holatda axborotlarni tinglash, o'zgartirish hamda to'sib qo'yish mumkin. Bir qancha tarmoqni tahlillovchi protokollar orqali bu hujumni amalga oshirish mumkin. Hujumni amalga oshiruvchi dasturiy ta'minotlar orqali CODEC (video yoki ovozli analog signalni raqamli signalga aylantirib berish va aksincha) standartidagi raqamli tovushni osonlik bilan yuqori sifatli, ammo katta hajmni egallaydigan ovozli fayllar (WAV)ga aylantirib beradi. Odatda bu hujumning amalga oshirilish jarayoni foydalanuvchiga umuman sezilmaydi. Tizim ortiqcha zo'riqishlarsiz va shovqinsiz belgilangan amallarni bajaraveradi. Axborotning o'g'irlanishi haqida mutlaqo shubha tug'ilmaydi. Faqatgina oldindan ushbu tahdid haqida ma'lumotga ega bo'lgan va yuborilayotgan axborotning o'z qiymatini saqlab qolishini xohlovchilar maxsus tarmoq xavfsizlik choralarini qo'llash natijasida himoyalangan tarmoq orqali ma'lumot almashish imkoniyatiga ega bo'ladi.

Hozirda butun dunyoda ko'plab kompyuterlar tarmoq orqali ulanmoqda. Butun dunyo miqyosida kompyuterlar orqali muloqot qilishi uchun ular bir-birini tushunishi kerak (mutanosib bo'lishi kerak). Kompyuterlar mutanosibligini ta'minlash maqsadida ITO–International Telecommunication Union (xalqaro telekommunikatsiya uyushmasi) tashkil qilingan. U telefon va ma'lumotlarni uzatish tizimlari nazorat qiluvchi uchta organdan iborat. Bu organ CCITT fransuzchada Consultatif International de Teagraphique et Telefonique deb ataladi. Ularning asosiy vazifasi telefon, telegraf, ma'lumotlarni uzatish xizmati sohasiga oid muhim takliflarni ishlab chiqadi va takliflar ko'p xollarda xalqaro andozaga aylanadi.

Xalqaro andozalar ISO - (International Organization and Standardization- Xalqaro tashkilot va andozalash) tomonidan ishlab chiqiladi. U o'ziga dunyodagi 100 dan ortiq mamlakatlarni birlashtirgan. Shu jumladan, AQShning ANSI, Buyuk Britaniyaning BSI, Germaniyaning DIN tashkilotlarini birlashtiradi.

Yana bir xalqaro tashkilot IEEE (Institute of Electrical and Electronics Engineers - elektr va elektromuxandislik intituti) turli jurnallar chiqarishdan tashqari elektron va hisoblash texnikasi bo'yicha ko'plab andozalarni ishlab chiqadi. Lokal tarmoqlar uchun uning IEEE 82 andozasi asosiy hisoblanadi.

Tashkilot tarmoqlarini ishonchli qurish va ekspluatatsiya qilish ko'p jihatdan xalqaro va milliy standartlarni to'g'ri qo'llaganlikda namoyon bo'ladi. Chunki

standart bo'yicha loyihalangan va tizimlashtirilgan tarmoq ham fizik, ham mantiqiy jihatdan to'g'ri ishlaydi. Tarmoq administratorlaridan asosiy talab ham shu. Ya'ni tarmoq xavfsiz va tezkor, turli xavflardan xoli, tashqi ta'sirlarga chidamli bo'ishi kerak.

Kompyuterli tarmoqlar sohasida standartlashtirish bilan shug'ullanadigan tashkilotlar 1-jadvalda keltirilgan.

1-jadval

Tashkilot statusi	qisqartirilgan nomi	To'liq nomi	
		Inglizcha	O'zbekcha
Xalqaro	CCITT/MK K TT ITU (1993 yildan)	International Telegraph and Telephone. Consultative Commitell International Telecommunication Union- Telecom	Telefon va telegraf bo'yicha Xalqaro maslaxatchi qo'mitalar. Xalqaro Telekommunikatsiyalar birlashmasi – Telekom
Xalqaro	ISO MOS	International Organization for Standartization	Xalqaro standartlashtirish tashkiloti
Xalqaro	ESMA	European Computer Manufactures Association	Yevropa ishlab chiqaruvchilar assotsiatsiyasi
Xalqaro	ETSI	European Telecommunications Standard Institute	Telekommunikatsiyalar sohasidagi Yevropa standartlar instituti
Milliy (AQSH)	IEEE	Institute of Electronic and Electrical Engineers	Elektronika va radioelektronika muhandislar instituti
Milliy (AQSH)	EIA AHSI	Electronic Industries Associatin	Elektron sanoati assotsiatsiyasi
Milliy (AQSH)		American National Standards Institute	Standartlar Amerika Milliy instituti
Milliy (AQSH)	TIA	Telecommunication Industry of America	Amerikaning telekommunikatsion industriyasi

Ba'zan boshqa tasnif qo'llaniladi, bunda protokollar quyidagi guruhlarga bo'linadi:

Novell (Novell firmasidan, o'zining OC tarmoqlari bilan ma'lum);

SNA (IBM firmasidan);

DEC net (DEC firmasidan);

TCP/IP (lokal tarmoqdagi kommunikatsiya uchun katta guruh protokollari yoki bir birovi bilan bog'liq bo'lgan tarmoqlar yig'indisida, shu bilan birga Internet tapmog'ida keng qo'llaniladigan);

Banyan (Banyan Systems firmasida);

Apple (Apple Computems firmasidan).

Elektron pochta – Internet tizimidagi elektron pochta juda ko'p ishlatilayotgan axborot almashish kanallaridan biri hisoblanadi. Elektron pochta yordamida axborot almashuvi tarmoqdagi axborot almashuvining 40%ini tashkil etadi. Bunda axborot almashuvi bor-yo'g'i ikkita protokol: SMTP (Simple Mail Transfer Protocol) va POP-3 (Post Office Protocol)larni ishlatish yordamida amalga oshiriladi. POP-3 multimedia texnologiyalarining rivojini aks ettiradi, SMTP esa Arpanet proyeksi darajasida tashkil etilgan edi. Shuning uchun ham bu protokollarning hammaga ochiqligi sababli, elektron pochta resurslariga ruhsatsiz kirishga imkoniyatlar yaratilib berilmoqda:

SMTP server — dasturlarining nokorrekt o'rnatilishi tufayli bu serverlardan ruhsatsiz foydalanilmoqda va bu texnologiya «spam» texnologiyasi nomi bilan ma'lum; elektron pochta xabarlariga ruhsatsiz egalik qilish uchun oddiygina va samarali usullardan foydalanilmoqda, ya'ni quyi qatlamlarda vinchestyerdagi ma'lumotlarni o'qish, pochta resurslariga kirish parolini o'qib olish va xokazolar.

Elektron pochtdan foydalanish jarayonning asosiy maqsadi muhim xujjatlar bilan ishlashni to'g'ri yo'lga qo'yish hisoblanadi. Bu yyerda quyidagi yunalishlar bo'yicha takliflarni e'tiborga olish zarur:

E-mail tizimidan tashkilot faoliyati maqsadlarida foydalanish;

shaxsiy maqsadda foydalanish;

maxfiy axborotlarni saqlash va ularga kirish;

elektron xatlarni saqlash va ularni boshqarish.

Axborotning maxfiyligi – axborotdan faqatgina ruhsatga ega foydalanuvchilar foydalanishlari mumkinligini ta'minlaydi. Foydalanuvchining erkin foydalanish huquqini Identifikatsiya va Autentifikatsiya qilish bilan boshqarish uchun quyidagilardan foydalanish talab qilinadi:

Identifikatsiya PIN-Kodlari

Intellektual kartochkalar, kontaktsiz kartochkalar

Biometrik ko'rsatkichlar

Xavfsizlikka tahdid va zaif joylar

Xatolar va kamchiliklar

Firibgarlik va o'g'rilash

Fizik va infratuzilmali ta'minotni yo'qotish

Xaker va buzg'unchi

Zararli kod va dasturiy ta'minot

Xorijiy hukumatning josuslik harakatlari

Xulosa qilib aytganda, tarmoq texnologiyalarini tartibga soluvchi ko'plab tashkilotlar mavjud bo'lib, ularning vazifasi muntazam o'zgarib, yangilanib borayotgan, ixtirolarga boy, yangi texnologiyalarni xo'jalik tarmog'iga kirib kelishi bilan ularni tartibga solish va zamon talablariga mos standartlarni ishlab chiqish, nazorat qilish, xavfsizligini ta'minlashdan iboratdir.

Yuqoridagi ma'lumotlardan kelib chiqib quyidagicha takliflarni berish mumkin. Axborot xavfsizligi bo'yicha yo'l qo'yiladigan keng tarqalgan xatolar:

Stikerlarda parollar;

Kompyuterni ishlash paytida qarovsiz qoldirish;

Begona kompyuterlarda elektron pochta ilovalarini ochish;

Parolning yomon tuzilishi (hayvonlar, avtomobillar nomlari, ismlar);

Portativ kompyuterlardan erkin foydalanish;

Mahmadonalik;

Ishga solish va o'ynash;

Qayd etilmagan xavfsizlikni buzish;

Xavfsizlik tizimi bo'yicha yangilanishlarni o'rnatishni doim keyinga qoldirish;

Tashkilot ichidagi xavflarga e'tiborsizlik.

Foydalanilgan adabiyotlar:

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MODERN METHODS OF WEBSITE PROTECTION FROM DDOS ATTACK.

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Abstract: *Distributed Denial of Service (DDoS) attacks represent a persistent and growing threat to websites and online services. These attacks, which overwhelm websites with malicious traffic, can cause significant downtime, financial losses, and reputational damage. As cyber threats evolve, so too must the methods used to defend against them. This article explores the different types of cyber attacks, with a focus on DDoS, and examines modern methods for website protection. By understanding the nature of these threats and the latest defense strategies, organizations can better secure their digital assets and ensure the availability of their services.*

Keywords: *Cybersecurity, DDoS protection, web security, botnets, traffic filtering, WAF, CDN, mitigation, AI, network security.*

Types of Cyber Attacks: Cyber attacks come in many forms, each designed to exploit specific vulnerabilities in systems, networks, or users. Among the most common types of cyber attacks are:

Distributed Denial of Service (DDoS) Attacks: DDoS attacks aim to make a website or online service unavailable by overwhelming it with traffic from multiple sources. Attackers use botnets—networks of compromised computers—to flood the target with requests, consuming its resources and preventing legitimate users from accessing the service. DDoS attacks can range from volumetric attacks that consume bandwidth to application-layer attacks that target specific web applications, making them particularly challenging to defend against.

Phishing Attacks: Phishing is a form of social engineering where attackers deceive individuals into providing sensitive information, such as passwords or credit card numbers. These attacks often involve fake emails, websites, or messages that appear to be from legitimate organizations. Once the victim provides the requested information, attackers use it for fraudulent purposes, such as unauthorized access to accounts or financial theft.

Malware Attacks: Malware, or malicious software, is designed to infiltrate, damage, or disrupt computer systems. Common types of malware include viruses, worms, ransomware, and spyware. Ransomware encrypts a victim's data and demands payment for the decryption key, while spyware covertly monitors user activity to steal sensitive information. Malware can spread through infected email attachments, compromised websites, or malicious downloads.

SQL Injection Attacks: SQL injection is a technique used by attackers to exploit vulnerabilities in a website's database. By inserting malicious SQL code into input fields (such as login forms), attackers can manipulate the database, potentially gaining unauthorized access to data or executing unauthorized commands. This type of attack is particularly dangerous for websites that do not properly sanitize user inputs.

Man-in-the-Middle (MitM) Attacks: In a MitM attack, the attacker intercepts and possibly alters the communication between two parties without their knowledge. This type of attack is often used to steal sensitive information, such as login credentials or financial data. MitM attacks are particularly common on unsecured networks, such as public Wi-Fi, where attackers can easily intercept data.

Cross-Site Scripting (XSS) Attacks: XSS attacks involve the injection of malicious scripts into websites that are then executed by unsuspecting users. These scripts can steal information such as cookies, session tokens, or other sensitive data. XSS attacks are particularly harmful because they exploit the trust a user has in a website, leading to potential data breaches or account compromises.

Brute Force Attacks: Brute force attacks involve systematically guessing passwords or encryption keys until the correct one is found. Attackers use automated tools to rapidly test a large number of combinations, targeting accounts with weak or commonly used passwords. Brute force attacks can lead to unauthorized access to accounts and sensitive data.

Modern Solutions

In response to the evolving threat landscape, modern methods of protecting websites from DDoS attacks have become more sophisticated and multi-layered. These solutions combine advanced technologies with strategic approaches to mitigate the impact of attacks and ensure the availability of online services.

Web Application Firewalls (WAFs): WAFs are critical components in modern website protection strategies. They operate by filtering and monitoring HTTP traffic between a website and the internet. WAFs use a set of rules to block malicious traffic, including DDoS attacks, SQL injections, and XSS attacks. Modern WAFs are often cloud-based, providing scalable protection that can adapt to varying levels of traffic and attack intensity. They offer real-time threat detection and mitigation, ensuring that only legitimate traffic reaches the web servers.

Content Delivery Networks (CDNs): CDNs are globally distributed networks of servers that cache website content close to the end-users. By distributing traffic across multiple servers, CDNs reduce the load on any single server, making it more difficult for attackers to overwhelm the target. CDNs also come equipped with built-in DDoS protection mechanisms, such as traffic filtering

and rate limiting, which can identify and block malicious traffic before it reaches the website. This not only enhances website performance but also adds a layer of security against DDoS attacks.

DDoS Mitigation Services: Dedicated DDoS mitigation services specialize in detecting and mitigating DDoS attacks. These services operate at the network level, using sophisticated algorithms and machine learning to identify patterns of malicious traffic. Upon detection, they can reroute traffic through scrubbing centers, where malicious packets are filtered out, and only clean traffic is allowed to pass through to the website. This approach ensures that even large-scale DDoS attacks can be mitigated without disrupting legitimate users.

Behavioral Analytics and Machine Learning: Modern cybersecurity strategies increasingly rely on behavioral analytics and machine learning to detect and respond to DDoS attacks. These technologies analyze traffic patterns and user behavior to identify anomalies that may indicate an attack. For example, sudden spikes in traffic from unusual locations or repetitive requests from the same IP addresses can trigger alerts and automated responses. Machine learning models continuously learn from new data, improving their accuracy and effectiveness in detecting emerging threats.

Rate Limiting and Traffic Shaping: Rate limiting is a technique used to control the rate at which requests are processed by a server. By setting limits on the number of requests that can be made from a single IP address or over a specific time period, websites can prevent malicious traffic from overwhelming their resources. Traffic shaping, on the other hand, prioritizes certain types of traffic over others, ensuring that critical services remain operational even during an attack. These techniques are particularly effective in mitigating application-layer DDoS attacks.

Anycast Network Architecture: Anycast is a routing technique used to distribute traffic across multiple data centers. In the context of DDoS protection, anycast networks help distribute the load of incoming traffic across multiple servers, reducing the impact of an attack on any single server. This approach also enhances redundancy and fault tolerance, ensuring that even if one data center is targeted, others can continue to serve legitimate traffic.

DNS Filtering and IP Blacklisting: DNS filtering involves blocking malicious traffic at the domain name system (DNS) level, preventing requests from ever reaching the website. This technique is often used in conjunction with IP blacklisting, where known malicious IP addresses are blocked from accessing the website. By combining these methods, websites can effectively filter out a significant portion of malicious traffic before it can cause harm.

Hybrid Cloud Solutions: Many organizations are adopting hybrid cloud solutions that combine on-premises and cloud-based security measures. This

approach allows for greater flexibility and scalability in responding to DDoS attacks. On-premises solutions provide immediate protection and control, while cloud-based services offer additional capacity and resources to handle large-scale attacks. Hybrid solutions ensure that websites can maintain high levels of security while also optimizing performance and cost.

Automated Incident Response: Modern DDoS protection strategies increasingly incorporate automated incident response systems that can detect and respond to attacks in real-time. These systems use predefined rules and machine learning models to identify threats and trigger automated actions, such as rerouting traffic, activating additional security measures, or alerting administrators. Automated responses help reduce the time it takes to mitigate an attack, minimizing the impact on website availability.

Encryption and Secure Communication: Encryption plays a crucial role in protecting websites from man-in-the-middle attacks and other forms of eavesdropping. By encrypting data transmitted between the website and users, organizations can prevent attackers from intercepting sensitive information or injecting malicious content. Modern encryption protocols, such as HTTPS and TLS, are essential for securing website communications and protecting against a wide range of cyber threats.

Conclusion

Modern methods for website protection from DDoS attacks have advanced significantly, evolving to meet the growing complexity of cyber threats. From cloud-based DDoS mitigation and WAFs to AI-powered behavioral analytics, these tools provide a robust and comprehensive defense against attacks aimed at disrupting online services. The key to effective DDoS protection lies in a multi-layered approach that combines various techniques, such as traffic filtering, rate limiting, and content distribution. As attackers continue to develop more sophisticated methods, cybersecurity professionals must stay vigilant, continuously refining their defenses to ensure that their websites remain secure and accessible. By leveraging modern technologies and embracing a proactive approach, businesses and organizations can effectively mitigate the risks associated with DDoS attacks and other cyber threats.

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**МАТРИЧНАЯ ИНФРАКРАСНАЯ ТЕРМОГРАФИЯ С
ИНТЕЛЛЕКТУАЛЬНЫМ АНАЛИЗОМ ДАННЫХ И
ИНСТРУМЕНТАМИ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА КАК
СОВРЕМЕННЫЙ ПОДХОД К РЕШЕНИЮ РЯДА АКТУАЛЬНЫХ
ЕСТЕСТВЕННОНАУЧНЫХ ПРОБЛЕМ**

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Аннотация: *Представлены широкие возможности, достигаемые при усилении современного матричного тепловидения технологиями интеллектуального анализа данных и инструментами искусственного интеллекта. Развитие метода обеспечивается созданием автоматизированного программно-измерительного комплекса, где основным инструментом исследования служит высокоскоростная и высокочувствительная тепловизионная камера с матричным детектором излучения, обладающая быстродействием 100 и более кадров в секунду и температурной чувствительностью порядка 0.01 градуса. Тепловизор в этой системе оперирует не как отдельный прибор, а совместно с использованием технологий интеллектуального анализа временных рядов коррелированных данных, синхронно поступающих от объекта исследования одновременно по нескольким (порядка десяти) информационным каналам. Такой подход приводит к значительному повышению информативности метода и расширению его функциональности при решении разнообразных естественнонаучных задач.*

Ключевые слова: *инфракрасная термография, автоматизированный программно-измерительный комплекс, биомедицина и химическая физика, интеллектуальный анализ данных, искусственный интеллект*

Метод высокоскоростной и высокочувствительной инфракрасной (ИК) термографии появился сравнительно недавно (несколько десятков лет назад) в результате применения к классическому тепловидению современных цифровых технологий и внедрения в эту область матричных детекторов ИК излучения. Оцифровывание тепловых изображений стало своеобразной технической революцией в этой сфере, поскольку осуществилась возможность представлять термограммы уже не на качественном (светлые/темные поля), а на количественном уровне, что существенно увеличило объективность результатов анализа температурных полей.

Матричная ИК термография развивается в Институте физики

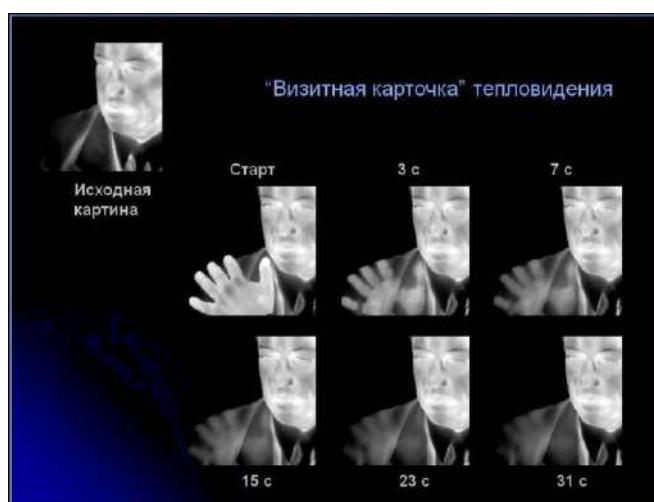


Рис. 1. Демонстрация уникальных возможностей тепловидения: эволюция теплового следа руки на пиджаке. На термограммах указано время, прошедшее после убирания руки.

полупроводников им. А.В.Ржанова Сибирского отделения РАН с середины 90-х годов прошлого века. В вышеупомянутый период в институте был разработан и сконструирован тепловизор медицинского назначения ТКВр-ИФП (в дальнейшем при сертификации аппарата название было дополнено символами "/СВИТ") [1]. В ИФП СО РАН преимущественные направления исследований с применением матричной тепловизионной камеры лежат сегодня в области биомедицины [2-5] и химической физики [6-8].

В настоящее время к тепловизионному методу невозможно относиться, как к чему-то второстепенному, по следующим причинам. Во-первых, он до сих пор остается уникальным, ибо в разнообразнейшем семействе научного инструментария не существует соответствующих ему аналогов. ИК термография является единственным средством, позволяющим предельно быстро, за доли секунды, выявить с высоким пространственным разрешением, зависящим от используемой оптики и формата матричного

детектора, распределение температуры на обширных участках поверхности изучаемых объектов. В качестве иллюстрирующего примера можно привести демонстрационную серию последовательно измеренных термограмм, отображающих тепловой отпечаток руки на пиджаке и его последующее постепенное "рассасывание" с течением времени (рис. 1). Ни один другой метод не обеспечит наблюдение (и, при необходимости, количественный анализ) приведенного эффекта. Во-вторых, ИК термографию используют сегодня как необходимый инструмент во многих научных, технических, биомедицинских, народно-хозяйственных и иных приложениях. При этом, границ применимости метода, практически, нет, поскольку диссипация энергии с переходом последней в тепло сопровождает большинство природных и искусственно инициированных процессов, вызывая изменение температуры тел и, соответственно, изменение интенсивности исходящего от них теплового излучения.

В то же время, значительное число работ, проведенных с применением тепловидения нового поколения, показало, что одного лишь этого метода часто оказывается недостаточно для всестороннего понимания и строгого описания изучаемых процессов и явлений. Последнее, в том числе, оказалось критически важным для медицинской диагностики [9].

Помимо температурной динамики физические свойства изучаемых систем характеризует множество других показателей, учет которых позволяет представить интересующий объект с большей полнотой и точностью. Для биомедицины такими типичными неинвазивно измеряемыми параметрами служат, к примеру, артериальное давление, сердечный ритм, частота лёгочного дыхания, скорость пульсовой волны и др. Для химической физики это давление газа, молекулы которого взаимодействуют с твердым телом, сам молекулярный состав газа, влажность среды, в которой протекают реакции, и пр. При таком разнообразии и количестве параметров (уже начиная с трех-четырех) анализ экспериментальных данных, проведенный лишь на уровне, ограниченном когнитивными способностями исследователя, практически не позволяет однозначно и безошибочно интерпретировать результаты измерений. Это бывает трудно сделать даже с привлечением таких мощных инструментов обработки данных, как нелинейная динамика или статистический анализ.

Для подобных случаев представляется высокоперспективной комбинация классических методов анализа информационных сигналов с методами искусственного интеллекта (data mining, машинное обучение), что при благоприятном развитии может позволить даже предсказывать

поведение изучаемой системы, однако, порождает и потребность в создании автоматизированной технологии извлечения значимых паттернов и характеристик, присущих интересующим объектам.

Использование вышеупомянутых приёмов и подходов может существенно расширить возможности ИК термографии, как метода физических исследований, если войдет в виде дополняющих ее инструментов в состав универсального тепловизионного автоматизированного программно-измерительного комплекса (АПИК) нового поколения. В таком комплексе главным измерительным средством остается высокоскоростная и высокочувствительная матричная тепловизионная камера с характерным быстродействием 100 и более кадров в секунду и температурной чувствительностью порядка 0.01 градуса при температурах измеряемого объекта на уровне 30 градусов Цельсия. При этом предполагается, что тепловизор будет оперировать (online или offline) совместно с использованием технологий интеллектуального анализа синхронно измеренных временных рядов коррелированных данных, извлекаемых со стороны объекта исследований одновременно по нескольким (порядка десяти) информационным каналам, преимущественно, в условиях мягкого стрессорного (интервентного) воздействия на изучаемую систему [10].

Подобный комплекс пока ещё в завершённом виде не реализован, но предварительные результаты наших работ в этом направлении позволяют надеяться на успех в его создании [10, 11].

Разработка АПИК потребует проведения мультидисциплинарных исследований (инженерное конструирование, физика, физическая химия, техника, автоматизация эксперимента, биомедицина, математика, обработка и анализ данных). Новый инструмент явит собой принципиально новый подход и новую методологию в тепловидении, которые, в конечном итоге, окажутся высоко востребованными и, что ожидается, будут внедрены в разные области наук и сферы человеческой деятельности (медицина, технологические процессы, производство и др.). Это уже не будет рядовым тепловизором, "умеющим" лишь отличать теплое от холодного.

С применением инструментов нелинейной динамики, включенных в АПИК, появится возможность формирования фазовой картины эволюции изучаемой системы. Для этого будет разработан и реализован алгоритм приведения измеренных динамических экспериментальных данных к единому масштабу времени, найдены оптимальные алгоритмы выявления и обработки артефактов, присущих экспериментальным методам в целом, и потому имеющие для последних несомненную значимость. У людей

(больных и практически здоровых) с применением АПИК можно будет впервые выявить и изучить положения и траектории динамических аттракторов в фазовом многомерном пространстве, позволяющих сделать объективные выводы о состоянии и функциональных резервах организма.

С помощью созданной инновационной методологии, включающей в себя инструменты искусственного интеллекта, можно будет, в том числе, определять и изучать у человека эффективные алгоритмы тренировки дыхательной мускулатуры разной интенсивности в зависимости от уровня индивидуального развития его кардиореспираторной системы. Аналогов подобной технологии в биомедицине пока нет.

В настоящий период, осложненный пандемией COVID-19, а также предсказываемыми иными агрессивными заболеваниями (к примеру, так называемой, "болезнью X" [12-14]), примером, подчеркивающим актуальность практического использования результатов разработки описываемой здоровьесберегающей технологии, может служить следующий. Сегодня для контролирования эффективности применения аппарата искусственной вентиляции лёгких (ИВЛ) основным инструментом служит анализ газового состава крови, в том числе насыщение периферической крови кислородом SpO₂. Однако немаловажным показателем при ИВЛ служит также динамика периферического кровообращения. Для ее объективного мониторинга удобным аксессуаром служит тепловизор [3, 4]. С помощью последнего можно неинвазивно, непрерывно, в реальном масштабе времени и при этом в автоматическом режиме вести дистанционный контроль перфузии в дистальных отделах всех четырех конечностей одновременно (пальцы рук и ног), что в условиях агрессивных инфекций чрезвычайно важно, поскольку позволяет ограничить прямой контакт медицинского персонала с зараженным пациентом. При нарушении кровоснабжения периферических тканей (понижение температуры) можно при этом успеть своевременно принять необходимые экстренные меры.

Но даже при подобном весьма эффективном мониторинге больного невозможно, пользуясь лишь двумя вышеупомянутыми показателями (SpO₂ и температура пальцев), достигнуть необходимого уровня диагностики. Уже на начальном этапе развития патологических процессов сдвиг гомеостаза от базового состояния вызывает отклик практически всех жизнеобеспечивающих систем организма и приводит к нарушению стабильности и согласованности физиологических параметров, характерных для здорового человека. Данный начальный донологический этап практически невозможно надежно зарегистрировать средствами современной

медицинской техники, но, предполагается, его окажется способным с необходимой достоверностью обнаружить АПИК, что следует из принципов построения этого комплекса. Соответственно, дополнением к системам ИВЛ может в перспективе стать тепловизионный АПИК в мобильном исполнении, снабженный программными средствами, ориентированными на нужды экстренной медицины.

Помимо биомедицинских объектов (люди, экспериментальные животные), важным классом систем, для изучения которых современный тепловизионный метод, чрезвычайно эффективен, являются адсорбенты и катализаторы, широко используемые в современных химических технологиях. Как было недавно продемонстрировано [7], современная ИК термография способна *in situ* с временным разрешением порядка 10 мс прецизионно и, главное, синхронно (!) регистрировать эволюционные превращения одновременно целой серии образцов комнатной температуры, состоящей из десятка и более разнотипных твердотельных структур, при протекании на их поверхности сорбционных и/или каталитических процессов, что является высокоперспективным направлением исследований в мировой материаловедческой науке. Такой подход, реализованный в автоматическом режиме с помощью АПИК, позволит не только оперативно проводить сравнение поверхностных свойств известных и новых материалов, но также по количественно регистрируемым тепловым эффектам добывать свежие фундаментальные знания об этих системах.

В настоящее время в мире поиск оптимального химического состава катализаторов, собранных в ёмкую библиотеку, осуществляют с применением тепловизионного метода на самом упрощённом уровне: в камеру реактора напускают газ-реагент, приводят систему к равновесию и регистрируют какая из ячеек в экзотермическом процессе демонстрирует большой нагрев [15]. При этом теряется много важной информации об объекте исследования. Разработанный АПИК позволит увидеть и с применением математических методов интеллектуально проанализировать динамику температурных изменений на всех загруженных образцах одновременно, регистрируя, в том числе, неравновесные состояния системы с временным разрешением порядка миллисекунд и даже быстрее. При таком подходе может оказаться (из-за эффектов насыщения каталитической активности и/или протекания иных физико-химических процессов), что самый "горячий" образец не есть самый оптимальный для дальнейшего применения в катализе. Аналогичные исследования, реализуемые с помощью описываемого комплекса, применимы и к анализу сорбционной активности

поверхности твердотельных структур, поскольку адсорбция является начальной стадией катализа.

Из вышесказанного следует, что матричная ИК термография, усиленная интеллектуальным анализом данных и инструментами искусственного интеллекта, представляет собой современный высокоинформативный подход к решению актуальных проблем естественных наук.

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KIBERXAVFSIZLIK SIYOSATINI YURITISHNI ISTIQBOLLI REJALASHTIRISH

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Annotatsiya: *Maqolada soxa va korxonalar uchun ma'lumotlarning xavfsizligini ta'minlash, kiberxavfsizlik tahdidlariga qarshi samarali choralar ko'rish, kiberxavfsizlik siyosatini yuritishni istiqbolli rejalashtirish, ya'ni ma'lumotlarni himoya qilish qonunlari, maxfiyligini, barqarorligini va mavjudligini ta'minlashda innovatsion texnologiyalardan foydalanish masalalari yoritilgan. Xozirgi davr talabiga asosan ma'lumotlarning xavfsizligi korxonaning ishonchliligini saqlash, mijozlar va hamkorlar bilan munosabatlarni mustahkamlashda, hamda huquqiy talablarga mos ravishda ularni amalga oshirish bo'yicha tavsiyalar ishlab chiqilgan.*

Kalit so'zlar: *kiberxavfsizlik, tahdid, siyosat, shifrlash, maxfiylik, parollar, standartlar, blokcheyn, texnologiya, ma'lumotlarni boshqarish, brandmauerlar (Firewalls).*

Kirish. Ma'lumki, zamonaviy dunyoda texnologiyaning tez rivojlanishi bilan birga, kiberxavfsizlik muammolari ham jadal o'sib bormoqda. Soxa va korxonalar uchun ma'lumotlarning xavfsizligini ta'minlash, tizimlarning ishonchligini saqlab qolish va kiberxavfsizlik tahdidlariga qarshi samarali choralar ko'rish juda muhim ahamiyat kasb etadi. Bu maqolada, soha va korxonalarda kiberxavfsizlik siyosatini yuritishni istiqbolli rejalashtirish bo'yicha keng va batafsil ma'lumot taqdim etiladi[1-3].

Kiberxavfsizlik siyosatlari — bu korxonadagi ma'lumotlarni, tizimlarni va infrastrukturani himoya qilish uchun belgilab qo'yilgan qoidalar, standartlar va protseduralar to'plami. Ushbu siyosatlar korxonaning kiberxavfsizlik strategiyasini shakllantirish va amalga oshirishda asosiy yo'riqnoma sifatida xizmat qiladi.

Nima uchun kiberxavfsizlik siyosatlari kerak?

Ma'lumotlarni himoya qilish - har qanday soha va korxonada uchun kiberxavfsizlik siyosatining asosiy yo'nalishlaridan biri hisoblanadi. Ma'lumotlarning xavfsizligi korxonaning ishonchligini saqlash, mijozlar va hamkorlar bilan munosabatlarni mustahkamlash, hamda huquqiy talablarga mos kelish uchun juda muhimdir. Quyida ma'lumotlarni himoya qilishning muhim jihatlari va ularni amalga oshirish bo'yicha tavsiyalar keltirilgan.

Ma'lumotlarni klassifikatsiyalash:

- Ma'lumotlarning turiga qarab tasniflash. Ma'lumotlarning turli xillari mavjud bo'lib, ularni turlari bo'yicha tasniflash kerak. Bu tasniflash ma'lumotlarga qanday himoya choralari qo'llash kerakligini aniqlashda yordam beradi. Ma'lumotlarni quyidagi kategoriyalarga bo'lish mumkin:

Maxfiy ma'lumotlar (Confidential Data): Foydalanuvchi ma'lumotlari, moliyaviy ma'lumotlar, huquqiy hujjatlar va boshqalar.

Shaxsiy ma'lumotlar (Private Data): Korxonaning ichki jarayonlari, strategik rejalar va boshqalar.

Ommaviy ma'lumotlar (Public Data): Korxonada veb-saytida joylashtirilgan ma'lumotlar, marketing materiallari va boshqalar.

-Ma'lumotlarning mahfiyligiga qaror qilish. Har bir ma'lumot turi uchun uning maxfiyligi darajasini belgilash zarur. Bu darajalarga ko'ra ma'lumotlarga kirishni chegaralash, ularni shifrlash va saqlash choralari ko'rish mumkin.

Yuqori maxfiylik (High Confidentiality): Foydalanuvchi parollari, kredit karta ma'lumotlari.

O'rta maxfiylik (Medium Confidentiality): Xodimlarning shaxsiy ma'lumotlari.

To'g'ri maxfiylik (Low Confidentiality): Korxonada haqidagi umumiy ma'lumotlar.

Kirish nazorati:

-Foydalanuvchi autentifikatsiyasi. Ma'lumotlarga kirishni chegaralash uchun xavfsiz autentifikatsiya tizimlaridan foydalanish muhim. Buning uchun quyidagi usullardan foydalanish mumkin:

Parollar: Xavfsiz va murakkab parollardan foydalanish. Ikki faktorli autentifikatsiya (2FA): Qo'shimcha autentifikatsiya bosqichlarini joriy etish.

Biometriya: Skanerlar va boshqa biometriya qurilmalari orqali autentifikatsiya qilish.

- Rollarga asoslangan kirish nazorati (RBAC). Foydalanuvchilarga faqat ularning vazifalariga mos keladigan ma'lumotlarga kirish huquqini berish uchun rollarga asoslangan kirish nazoratini joriy etish. Bu ma'lumotlarni noto'g'ri yoki ruxsatsiz kirishdan himoya qiladi.

Ma'lumotlarni shifrlash. Ma'lumotlarni saqlash va yuborish paytida shifrlash orqali ma'lumotlarning maxfiylikini ta'minlash. Buning uchun quyidagi shifrlash standartlaridan foydalanish mumkin:

-AES (Advanced Encryption Standard): Ma'lumotlarning xavfsiz saqlanishi uchun zamonaviy va kuchli shifrlash standarti.

-RSA: Qo'shimcha shifrlash usuli bo'lib, ma'lumotlarning xavfsiz yuborilishi uchun qo'llaniladi.

Transport qoplamasiz shifrlash. (TLS va SSL protokollaridan foydalanish)

Ma'lumotlarni internet orqali yuborish paytida shifrlash uchun Transport Layer Security (TLS) yoki Secure Sockets Layer (SSL) protokollaridan foydalanish.

Transport qoplamasiz shifrlash tushunchasi:

Ma'lumotlarni shifrlash: Ma'lumotlar internet orqali yuborilganida, server va klient ma'lumotlarni xavfsiz shifrlangan kanal orqali yuboradilar. Ushbu kanal ma'lumotlarni transport qoplamasiz uzatish jarayonida shifrlaydi. Bu jarayonda ma'lumotlar qoplamasiz uzatiladi, ya'ni ma'lumotlarning o'zi to'g'ridan-to'g'ri shifrlangan holda uzatiladi.

TLS/SSL roli: TLS yoki SSL protokollari ma'lumotlarni transport qoplamasiz yuborish paytida shifrlashni ta'minlaydi. Ular ma'lumotlarni internet orqali uzatish paytida shifrlanib, xavfsiz kanal orqali yuborilishini ta'minlaydi.

Transport qoplamasiz shifrlashning afzalliklari:

Ma'lumotlarning maxfiylik (Confidentiality): Ma'lumotlar to'g'ridan-to'g'ri shifrlangan holda uzatiladi va faqat qabul qiluvchi tomonga ma'lumotlarni ocha oladi.

Ma'lumot yaxlitligi (Integrity): Ma'lumotlar uzatish jarayonida o'zgartirilmaganini tekshirib bo'ladi.

Autentifikatsiya (Authentication): Sertifikatlar orqali server va klient o'zaro bir-birini tasdiqlashlari mumkin.

Ma'lumotlarning zaxira nusxalarini yaratish:

- Zaxira(Rezerv) nusxalarni saqlash. Ma'lumotlarning zaxira nusxalarini saqlash korxonaning ma'lumotlarning yo'qolishi yoki buzilishi holatida tezda tiklanishini ta'minlaydi. Bu zaxira nusxalarni alohida fizik joylarda saqlash muhim.

- Zaxira nusxalarni yangilash. Zaxira nusxalarini muntazam ravishda yangilash va ularning samaradorligini baholash zarur. Bu ma'lumotlarning yanada xavfsizligini ta'minlaydi.

Ma'lumotlarning o'tkazilishini nazorat qilish:

- Ma'lumotlarning xujjatlashtirilishi. Ma'lumotlarning qanday qilib saqlanishi, ularga qanday kirish mumkinligi va ularning qanday foydalanilishi haqida hujjatlar tayyorlash. Bu siyosatlarining aniq va samarali amalga oshirilishiga yordam beradi.

- Ma'lumotlarning o'tkazilishini monitoring qilish. Ma'lumotlarning to'g'ri va xavfsiz ravishda o'tkazilishini ta'minlash uchun monitoring tizimlarini joriy etish. Bu ma'lumotlarning noto'g'ri yoki ruxsatsiz o'tkazilishini oldini oladi.

-Ma'lumotlarning o'chirilishi va hujjatlashtirilishi. Ma'lumotlarni o'chirish maxsus qoidalar asosida ma'lumotlarni to'liq va xavfsiz o'chirishni ta'minlash. Bu ma'lumotlarni qayta tiklash mumkin bo'lmagan holatda o'chirishni o'z ichiga oladi.

-O'chirish jarayonlarini hujjatlashtirish. Ma'lumotlarning qaysi vaqtda va qanday o'chirilganligini hujjatlashtirish. Bu korxonadagi ma'lumotlarning boshqarilishi va xavfsizligini oshirishga xizmat qiladi.

Ma'lumotlarni himoya qilish qonunlari:

-Korxonalar ma'lumotlarni himoya qilish bo'yicha qonunlarga muvofiqlikni ta'minlashlari kerak. Bu qonunlar har bir mamlakatda turlicha bo'lishi mumkin, shuning uchun ularni chuqur tushunish va amalga oshirish zarur.

-Xalqaro standartlar. ISO/IEC 27001 kabi xalqaro standartlardan foydalanish ma'lumotlarning xavfsizligini ta'minlashda samarali bo'lishi mumkin. Bu standartlar kiberxavfsizlik siyosati va protseduralarini shakllantirishda yo'riqnomaga bo'lib xizmat qiladi[4-6].

-Ma'lumotlarning himoya qilishini boshqarish. Korxonada ma'lumotlarining xavfsizligini ta'minlash uchun xavf analizlarini amalga oshirish zarur. Bu analizlar ma'lumotlarga qarshi qanday tahdidlar borligini aniqlash va ularga qarshi choralar ko'rish imkonini beradi.

-Xavflarga qarshi choralar ko'rish. Havf analizlari natijasida aniqlangan tahdidlarga qarshi samarali choralarni ko'rish. Bu profilaktik choralar, zararli dasturlarning oldini olish va ma'lumotlarning xavfsiz saqlanishiga ko'maklashadi.

Ma'lumotlarni himoya qilishda innovatsion texnologiyalardan foydalanish.

Mashina o'rganish va sun'iy intellekt texnologiyalari ma'lumotlarni himoya qilishda yangi imkoniyatlar yaratadi. Bu texnologiyalar tahdidlarni aniqlash va ularga qarshi choralarini avtomatlashtirish imkonini beradi.

Blokcheyn Texnologiyasi. Blokcheyn texnologiyasi ma'lumotlarning xavfsizligini oshirishda samarali vosita bo'lishi mumkin. Bu texnologiya ma'lumotlarning o'zgarishsizligini va qo'shimcha xavfsizlikni ta'minlaydi.

Zamonaviy tahdidlarga qarshi kurashishda antivirus va antimalware dasturlarini tavsiya qilamiz.

Antivirus dasturlari va antimalware bo'lgan zamonaviy hujumlarni aniqlash va ulardan himoya qilish uchun zarur vositalardir. Ular ma'lumotlarning tahdidlardan muhofaza qilishini ta'minlaydi va zararli dasturlarning tarqalishini oldini oladi.

Tavsiya sifatida korxonalarda keng qamrovli antivirus dasturlarini o'rnatish va ularni muntazam ravishda yangilash. Antivirusni avtomatik skanerlash rejimida ishlatish. Tahdidlar ro'yxatini doimiy ravishda kengaytirish va ularga mos ravishda himoya choralarini ko'rish[7,8].

Brandmauerlar (Firewalls) - bu tarmoqlarga kirishni nazorat qilish va hujumlarni oldini olishda muhim ahamiyatga ega bo'lgan vositalar. Ular to'g'ridan-to'g'ri tahdidlarni aniqlab, ularga qarshi choralar ko'rish imkonini beradi. Korxonalarda ichki va tashqi brandmauerlardan foydalanish. Brandmauerlar to'g'risidagi siyosatlarni aniqlab, ularni qonunlarga muvofiq ravishda shakllantirish.

Brandmauerlarini doimiy ravishda nazorat qilish va ularni yangilab turish.

Intrusion Detection Systems (IDS) va Intrusion Prevention Systems (IPS)

IDS va IPS tizimlari tarmoqlardagi shubhali faoliyatlarni aniqlash va ularga qarshi choralar ko'rishda muhim vositalardir. IDS tekshirish va xabar berishda foydalaniladi, IPS esa tahdidlarni oldini oladi. Korxonalarda zamonaviy ids va ips tizimlarini joriy etish.

Tizimlarning hujumlarga qarshi samaradorligini oshirish uchun ularni doimiy ravishda yangilash va optimallashtirish. Tahdidlarning tezda aniqlanishi va javob berishini ta'minlash uchun avtomatlashtirilgan jarayonlarni joriy etish.

Hujumlarni oldini olish uchun tez-tez yangilashlar (Patch Management)

Tizim va dasturlarning xavfsizligini ta'minlash uchun ularni muntazam ravishda yangilash juda muhimdir. Yangilashlar xavfsizlik zaifliklarini bartaraf etish va yangi tahdidlarga qarshi himoyani kuchaytirish imkonini beradi.

Barcha dasturlar va operatsion tizimlarning yangilashlarini doimiy ravishda kuzatish. Yangilashlarni avtomatlashtirish va ularni vaqtli ravishda amalga oshirish. Yangilashlarni test qilish va ularni ishonchli holda joriy etish.

Tarmoqni segmentatsiyalash (Network Segmentation)

Tarmoqni segmentatsiyalash orqali ma'lumotlarning xavfsizligini oshirish mumkin. Bu erda tarmoqni kichik qismlarga bo'lib, har bir qismda alohida xavfsizlik choralari ko'rish mumkin. Tarmoqni funksional bo'linmalarga bo'lib, har bir bo'limda alohida xavfsizlik choralari joriy etish. Hujum sodir bo'lgan bo'limdagi tahdidlarni boshqa bo'limlarga tarqalishini oldini olish.

Tarmoqni segmentatsiyalash uchun zamonaviy texnologiyalardan foydalanish.

Ma'lumotlarni boshqarish (Access Control)

Ma'lumotlarga kirishni chegaralash, faqat zarur bo'lgan xodimlarga ma'lumotlarga kirish huquqini berish korxonalarda xavfsizlikni ta'minlashda muhimdir.

Rollarga asoslangan kirish nazoratini (RBAC) joriy etish. Xodimlarning vazifalariga mos keladigan ma'lumotlarga kirish huquqini berish. Xodimlarning kirish huquqlarini muntazam ravishda tekshirish va qayta ko'rib chiqish.

Insidentlarga javob berish rejaları (Incident Response Plans)

Kiberxavfsizlik insidentlariga samarali javob berish va tizimlarni tezda tiklash uchun aniq rejalar yaratish zarur. Bu rejalar insidentlar sodir bo'lganida tezkor harakat qila olishni ta'minlaydi. Har bir korxonaga uchun maxsus insidentlarga javob berish rejasini yaratish. Rejani xodimlarga taqdim qilish va ularni o'qitish. Insidentlar sodir bo'lganidan keyin tezda tiklanish va o'rganish jarayonlarini joriy etish.

Ma'lumotlarni tiklash (Recovery) Insident sodir bo'lganidan keyin ma'lumotlarning to'g'ri va xavfsiz tiklanishi ta'minlanishi kerak. Bu ma'lumotlarni qayta tiklash jarayonlarini yaratish va ularni amalga oshirishni o'z ichiga oladi. Zaxira nusxalardan foydalangan holda ma'lumotlarni tezda tiklashni ta'minlash. Tizimlarning normal holatga qaytishini nazorat qilish. Tiklanish jarayonlarini test qilish va ularni takomillashtirish.

Xulosa. Ma'lumotlarni himoya qilish bo'yicha qoidalar, standartlar va protseduralarning hujjatlarini tayyorlash va ularni muntazam ravishda yangilash zarur.

-Boshqaruv tizimlari kiberxavfsizlik siyosatini samarali boshqarish uchun boshqaruv tizimlarini joriy etish. Bu tizimlar siyosatlarning amalga oshirilishi va samaradorligini ta'minlaydi.

-Ma'lumotlarni himoya qilish korxonalar uchun muhim bo'lib, buning uchun samarali kiberxavfsizlik siyosatlarini shakllantirish va amalga oshirish zarur. Ma'lumotlarning maxfiyligini, barqarorligini va mavjudligini ta'minlash korxonaning ishonchliligini saqlab qolishga xizmat qiladi. Huquqiy talablarga muvofiqlikni ta'minlash, xavf analizlarini amalga oshirish va innovatsion texnologiyalardan foydalanish ma'lumotlarning xavfsizligini oshirishda muhim rol o'ynaydi.

-Hozirgi zamonaviy tahdidlarga qarshi samarali choralarini ko'rish uchun ma'lumotlarni himoya qilish sohasida keng qamrovli yondashuv va strategiyalar talab etiladi.

-Korxonalar xodimlarning huquqiy majburiyatlarini aniqlab berishlari va ularga rioya qilishini ta'minlashlari kerak:

-Har bir xodimning kiberxavfsizlik siyosatlariga rioya qilishdagi mas'uliyatlarini aniqlab berish.

-Xodimlarning kiberxavfsizlik choralari qonunlarga mos ravishda qo'llashlarini ta'minlash.

Huquqiy majburiyatlar kiberxavfsizlik siyosatlarining asosiy qismidir va ularni samarali bajarish korxonalar uchun katta ahamiyatga ega. Qonunlarga va regulyatoriy standartlarga rioya qilish orqali korxonalar ma'lumotlarni himoya qilish, xavfsizlik tahdidlariga qarshi samarali choralar ko'rish va yuridik oqibatlardan xalos bo'lish imkoniga ega bo'ladi. Bu esa korxonaning ishonchliligini oshirish va bozordagi o'rnini mustahkamlashga yordam beradi.

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WEAKNESSES OF THE ADDRESS RESOLUTION PROTOCOL (ARP) AND THEIR IMPLICATIONS ON NETWORK SECURITY

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Abstract: *The Address Resolution Protocol (ARP) plays a crucial role in translating network layer addresses (IP) to link layer addresses (MAC) in IPv4 networks. Despite its fundamental importance, ARP has inherent vulnerabilities that expose networks to various forms of attacks, such as ARP spoofing and ARP cache poisoning. These vulnerabilities arise from the trust-based nature of ARP, which lacks mechanisms for verification or authentication of ARP responses. This thesis delves into the weaknesses of the ARP protocol, explores its potential exploitation by attackers, and provides mathematical models for understanding the likelihood and impact of these attacks. Furthermore, we analyze existing mitigation techniques and their efficacy in protecting networks against ARP-related threats.*

Keywords: *Address Resolution Protocol (ARP), ARP Spoofing, ARP Cache Poisoning, Man-in-the-Middle (MitM) Attack*

Introduction: In modern computer networks, the ARP protocol plays an essential role in linking Layer 2 (Data Link Layer) addresses with Layer 3 (Network Layer) addresses. Specifically, it translates IP addresses to MAC addresses, enabling devices on the same subnet to communicate over Ethernet. Despite its significance, ARP was designed with minimal security features. This lack of protection allows attackers to exploit ARP's vulnerabilities, leading to various attacks that compromise confidentiality, integrity, and availability of network traffic.

The primary weakness of ARP stems from its assumption that all devices on the network are trustworthy. This thesis examines the flaws within the ARP protocol, highlights the various forms of attacks it facilitates, and provides mathematical models to describe the potential for exploitation. Finally, we evaluate countermeasures to ARP-related attacks.

Introduction

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attackers to exploit ARP's vulnerabilities, leading to various attacks that compromise confidentiality, integrity, and availability of network traffic.

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Overview of the ARP Protocol

ARP is used to resolve the MAC address corresponding to a given IP address. When a host wants to communicate with another host on the same local network, it broadcasts an ARP request, asking, "Who has this IP address?" The device with the matching IP address responds with its MAC address. This process allows devices to map IP addresses to MAC addresses and communicate on the physical layer.

ARP operates in two modes:

ARP Request: A broadcast query sent to all devices on the local network.

ARP Reply: A unicast response containing the MAC address for the queried IP address.

Vulnerabilities in ARP

ARP Spoofing

ARP spoofing (also known as ARP poisoning) is a technique where an attacker sends false ARP messages over a local network. This allows the attacker to link their MAC address with the IP address of another device, such as a router or another host. Once the attacker's MAC address is associated with a legitimate IP address, they can intercept, modify, or even stop network traffic.

In ARP spoofing attacks, the attacker exploits the fact that ARP lacks any form of authentication. Since ARP does not verify the legitimacy of ARP replies, a malicious actor can respond to ARP requests with false information, effectively redirecting network traffic to their device.

ARP Cache Poisoning

ARP cache poisoning is another common attack that occurs when a malicious device sends unsolicited ARP replies to a target device, thereby "poisoning" its ARP cache. The poisoned ARP cache causes the target to associate an incorrect MAC address with an IP address, allowing the attacker to redirect, intercept, or block traffic intended for another host.

ARP cache poisoning attacks can be particularly damaging in the following ways:

Man-in-the-Middle (MitM) Attack: The attacker can intercept and manipulate communication between two devices.

Denial of Service (DoS): The attacker can disrupt communication by redirecting traffic to non-existent MAC addresses.

Traffic Interception in Man-in-the-Middle Attacks

The effectiveness of ARP spoofing in intercepting traffic can also be modeled mathematically. Assuming the attacker successfully poisons the ARP cache of both the sender and receiver, the volume of intercepted traffic $T_{\text{intercepted}}$ depends on the bandwidth and duration of the attack.

Let:

B be the network bandwidth.

t_{attack} be the duration of the attack.

The total traffic intercepted by the attacker can be modeled as:

$$T_{\text{intercepted}} = B \times t_{\text{attack}}$$

This gives an estimation of how much data can be compromised during an attack.

Network Impact and Real-World Implications

ARP spoofing and cache poisoning attacks can have severe consequences in real-world networks. Some of the critical impacts include:

Data Breach: Attackers can intercept sensitive information, including login credentials, banking information, and private communications.

Disruption of Network Services: By poisoning ARP caches, attackers can reroute or drop traffic, effectively creating denial-of-service conditions.

Financial and Reputational Damage: Organizations affected by ARP attacks may face significant financial losses, legal repercussions, and damage to their reputation.

Real-world examples of ARP attacks have been documented in several major breaches, highlighting the vulnerability of unprotected networks to such attacks.

Mitigation Techniques for ARP Attacks

Several countermeasures can mitigate the risks posed by ARP spoofing and cache poisoning:

Static ARP Entries

Administrators can manually configure static ARP entries to prevent ARP spoofing. While effective, this method is labor-intensive and impractical for large or dynamic networks.

ARP Spoofing Detection Tools

Various tools, such as ARPwatch and XArp, monitor ARP traffic and alert administrators to suspicious ARP replies. These tools can detect inconsistencies in the MAC-to-IP address mapping.

Dynamic ARP Inspection (DAI)

DAI is a security feature available on some switches that intercepts and inspects ARP packets. It checks ARP packets against a trusted database, rejecting spoofed ARP responses.

Network Segmentation

Segregating critical systems into different network segments and using VLANs can limit the scope of ARP spoofing attacks.

Conclusion

The ARP protocol, while essential for communication in IPv4 networks, suffers from critical vulnerabilities that make it a prime target for attackers. ARP spoofing and cache poisoning attacks can compromise network security, leading to data breaches, service disruption, and financial losses. By mathematically modeling the success and impact of ARP attacks, we can better understand their severity and develop more effective mitigation strategies. While several solutions exist, such as static ARP entries, detection tools, and network segmentation, none fully address ARP's inherent lack of authentication. Future work should focus on enhancing ARP security, potentially by integrating authentication mechanisms or transitioning to more secure protocols like IPv6's Neighbor Discovery Protocol (NDP).

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DEVOPS PRACTICES IN CONTINUOUS DEPLOYMENT: EVALUATING THE IMPACT OF DEVOPS ON REDUCING DEPLOYMENT TIME AND INCREASING SOFTWARE RELIABILITY

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Abstract (100-120 words): In today's fast-paced software industry, the demand for rapid and reliable software delivery has driven the adoption of DevOps practices, with continuous deployment (CD) at the core. This thesis explores the impact of DevOps, specifically focusing on how continuous deployment reduces software deployment time and increases reliability. By automating key processes like testing, integration, and deployment, CD enables organizations to deliver new features and bug fixes at a much faster pace, while minimizing human error. Furthermore, CD practices enhance software reliability through rigorous automated testing, faster incident response, and advanced deployment strategies like blue-green deployments and canary releases. Despite the challenges, such as the need for robust testing infrastructure and cultural shifts within organizations, continuous deployment has proven to be a game-changer in modern software engineering, allowing companies to improve both their agility and product quality. This thesis evaluates the benefits, challenges, and future direction of continuous deployment, concluding that it is a critical practice for achieving both speed and reliability in software development.

Keywords: DevOps, Continuous Deployment (CD), Software Reliability, Deployment Automation, Continuous Integration (CI), Agile Development, Automated Testing, Blue-Green Deployment

Introduction: In the rapidly evolving world of software engineering, agility, speed, and reliability are essential to meet user expectations and competitive demands. The need for faster delivery of high-quality software has given rise to the adoption of DevOps practices, which bridge the gap between development and operations teams. One of the central pillars of DevOps is continuous deployment (CD), a practice where software is automatically deployed to production environments after passing automated testing stages. This process has revolutionized the software development life cycle by reducing deployment time and improving software reliability.

This thesis will explore how DevOps practices, particularly continuous deployment, have impacted the software development process. We will delve into the technical aspects of continuous deployment, the benefits it brings to reducing deployment time, and the ways in which it enhances the reliability of software

systems. Additionally, we will analyze some challenges and potential improvements in CD practices.

1. Understanding DevOps and Continuous Deployment

DevOps is a culture and set of practices that bring together software development (Dev) and IT operations (Ops). It emphasizes automation, collaboration, continuous integration, and continuous delivery to streamline software deployment and improve performance. The primary goal of DevOps is to reduce the friction between development and operations teams, enabling them to work together more efficiently to deliver high-quality software quickly.

Continuous deployment (CD), a key practice in DevOps, takes this a step further. In CD, every code change that passes automated testing is automatically deployed to production, without requiring human intervention. This process eliminates manual release processes, leading to faster deployment cycles and fewer errors introduced during deployment.

The core components of continuous deployment include:

Version control: A centralized repository for code changes (e.g., Git).

Automated build systems: Tools like Jenkins, Travis CI, or CircleCI for building and testing the codebase automatically.

Automated testing: Test suites that check functionality, integration, and performance of the software.

Deployment pipelines: A set of automated steps to deploy code to production environments.

These components form a robust system that ensures rapid and reliable code deployment, minimizing risks and downtime.

2. Reducing Deployment Time with Continuous Deployment

One of the major benefits of DevOps practices, especially continuous deployment, is the significant reduction in deployment time. Traditional software deployment models often involve manual intervention, lengthy testing cycles, and coordination between development and operations teams. This process could take days or even weeks, depending on the complexity of the project. Continuous deployment addresses this issue by automating key aspects of the software release process.

2.1 Automation and Speed

Automation is a fundamental characteristic of continuous deployment. By automating build, testing, and deployment processes, developers can reduce the time spent on manual tasks. Continuous integration (CI) ensures that code changes are integrated and tested frequently, often multiple times a day. This eliminates the "integration hell" that developers faced in traditional development environments,

where changes would accumulate over time and integration would only occur at the end of the development cycle.

Once CI is in place, CD ensures that code is automatically deployed to production after passing predefined tests. This automatic pipeline reduces the time between writing code and delivering it to end users. In many cases, organizations that use CD can deploy multiple times per day, allowing them to deliver features, bug fixes, and security patches faster than ever before.

2.2 Agile Workflows and Shorter Feedback Loops

DevOps emphasizes agility, and CD is a crucial component of this agile workflow. In a continuous deployment environment, code changes are pushed to production rapidly, allowing developers to receive immediate feedback from end users. This short feedback loop helps developers identify and fix issues quickly, further speeding up the overall development process.

The rapid feedback from end users also allows businesses to adapt to market changes more effectively. By continuously delivering new features, companies can respond to customer needs in real time, enhancing their competitiveness.

2.3 Reducing Human Errors

Manual deployment processes are prone to human error, especially in large-scale environments. The automation inherent in continuous deployment eliminates the need for manual intervention, reducing the chances of misconfigurations, overlooked steps, or improper dependencies being introduced during the deployment process. Automation also ensures consistency across multiple deployments, which is especially important in complex systems with multiple services or microservices.

3. Increasing Software Reliability through Continuous Deployment

While reducing deployment time is critical, continuous deployment also plays a pivotal role in improving software reliability. Reliability in software is the ability to perform consistently under specified conditions, and CD contributes to this by enhancing the testing process, minimizing downtime, and ensuring swift rollback mechanisms in case of failure.

3.1 Automated Testing for Enhanced Reliability

Automated testing is one of the cornerstones of continuous deployment. Before code is deployed to production, it undergoes rigorous testing through unit tests, integration tests, and sometimes even acceptance tests. This ensures that code changes do not introduce bugs or regressions into the system.

Unlike traditional approaches where testing may be deferred until the end of the development cycle, continuous deployment integrates testing early and

frequently. Any code that fails the tests is immediately flagged and prevented from reaching production, which helps maintain a high level of reliability.

In addition to functional testing, continuous deployment pipelines can also incorporate performance and security tests. This ensures that not only is the functionality of the application reliable, but it also performs optimally under load and is secure from known vulnerabilities.

3.2 Faster Incident Response and Rollbacks

Even in the most robust systems, bugs may occasionally slip through the cracks. In a traditional deployment process, identifying and fixing bugs could take hours or even days, leading to extended periods of downtime or degraded service. Continuous deployment enables teams to respond to incidents more quickly.

When an issue is detected in a continuous deployment pipeline, it can be fixed immediately, and a patch can be deployed rapidly. In case of severe issues, CD systems also provide an automated rollback mechanism. A previous stable version of the software can be deployed instantly, restoring service while the development team investigates the root cause of the problem.

3.3 Blue-Green Deployments and Canary Releases

Another way in which continuous deployment enhances reliability is through advanced deployment strategies like blue-green deployments and canary releases. In a blue-green deployment, two identical environments (blue and green) are maintained. New code is deployed to the green environment while the blue environment continues serving production traffic. If the deployment is successful in the green environment, traffic is shifted to it. If something goes wrong, traffic can easily be shifted back to the blue environment, ensuring minimal downtime.

Canary releases, on the other hand, involve deploying new code to a small subset of users first. This allows developers to monitor the performance of the new version in a real-world setting with minimal risk. If the new version is stable, it can gradually be rolled out to the rest of the user base. Both of these strategies significantly reduce the risk of deploying faulty code to production environments, thus improving the overall reliability of the system.

4. Challenges and Considerations in Continuous Deployment

While continuous deployment offers numerous benefits, it is not without challenges. Teams must invest in robust testing infrastructure, monitor systems effectively, and manage potential complexities, especially in large-scale distributed systems. Additionally, some organizations may struggle with cultural changes required for effective DevOps adoption.

4.1 Cultural Shift

DevOps and continuous deployment require a cultural shift within organizations. Developers and operations teams must collaborate closely, and the responsibility for maintaining software reliability shifts from dedicated operations teams to developers themselves. This shift can be challenging for organizations that have traditionally operated in siloed environments.

4.2 Testing Infrastructure

Automated testing is essential for continuous deployment, but developing a comprehensive test suite can be time-consuming and resource-intensive. Tests must cover various aspects of the software, including functionality, performance, and security. Moreover, maintaining and updating test cases as the codebase evolves is a continuous process.

Conclusion

This study investigated the impact of DevOps practices, particularly continuous deployment, on reducing deployment time and increasing software reliability. The findings revealed that continuous deployment significantly reduces deployment time by automating key processes and enhances reliability through improved testing and rapid incident response. These results contribute to the understanding of how automation and streamlined processes in DevOps can improve both the speed and quality of software delivery.

The study's limitations include the potential need for large infrastructure investments and the challenges of organizational culture shifts. Further research is needed to explore the long-term effects of continuous deployment on different types of software projects and industries. Overall, this research provides valuable insights into the benefits and challenges of adopting continuous deployment practices in modern software engineering.

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MATNNI RAQAMLI TANIB OLISH DASTURLARI ISHLAB CHIQRARISH METODIKASI

Anotatsiya: Matnni optik aniqlash texnologiyalari (OCR) zamonaviy axborot texnologiyalari doirasida muhim o'rin egallab, qog'oz shakldagi ma'lumotlarni raqamli formatga o'tkazish imkonini beradi. Mazkur jarayon ma'lumotlar bilan ishlash samaradorligini oshirish va avtomatlashtirishni ta'minlaydi. Tadqiqotning maqsadi – turli OCR algoritmlarini tahlil qilish, ularning ishlash printsiplarini o'rganish va samaradorligini taqqoslashdir. Shuningdek, matnni tanib olish dasturlarining amaliy qo'llanishi, ularni rivojlantirishning asosiy yo'nalishlari va texnologik imkoniyatlari ko'rib chiqiladi. Ushbu ish nafaqat matnli ma'lumotlarni raqamlashtirishda, balki zamonaviy dasturiy ta'minotni ishlab chiqishda ham muhim ahamiyatga ega.

Kalit so'zlar: Matnni optik tanib olish (OCR), Neyron tarmoqlar, Matnni raqamlashtirish, Belgilarni aniqlash algoritmlari, Statistik tanib olish usullari, Mashinani o'rganish, Raqamli hujjatlar, Optik belgilarni aniqlash, Avtomatlashtirilgan dasturiy ta'minot, Tasvirlarni qayta ishlash.

Kirish: Tasvirlarni, shu jumladan belgilarni tanib olish, bugungi kunda inson faoliyatining turli sohalarida dolzarb vazifalardan biri hisoblanadi. Masalan, bu texnologiya sanoatda qismlarni avtomatik ravishda aniqlash, ta'limda testlarni avtomatlashtirilgan tarzda tekshirish va boshqa ko'plab sohalarda keng qo'llaniladi.

Vazifaning dolzarbligi:

Zamonaviy axborot texnologiyalari insoniyat tomonidan to'plangan ma'lumotlarni elektron shaklga o'tkazib, ularga kirishni ancha soddalashtirish imkonini beradi. Eng qulay va keng tarqalgan usullardan biri – hujjatlarni skanerlash va raqamli grafik faylga aylantirishdir. Ammo bu raqamli hujjatlarda matnni ajratib olish va tanib olish muammosi muhim ahamiyatga ega.

Matnni tanib olish nazariyasini ishlab chiqish davlat va xususiy tashkilotlar, shuningdek, dasturchilar uchun ham dolzarb vazifa bo'lib, bu algoritmlar testlar, matnlar, va jonli inson nutqini aniqlash va tanib olish imkonini beradi.

Ishning maqsadi:

Belgilarni aniqlash tizimlarining imkoniyatlarini taqqoslash va tahlil qilishdir.

Vazifalar:

Optik tanib olish nazariyasining asosiy tushunchalari va ta'riflarini o'rganish.

Optik belgilarni aniqlash texnologiyalarini ko'rib chiqish.

Belgilarni tanib olish tizimlarining imkoniyatlarini taqqoslash va tahlil qilish.

Matnni aniqlash vazifalari

Hozirgi vaqtda hujjatlarning aksariyati kompyuterlarda tuzilganiga qaramay, to'liq elektron hujjat aylanishini yaratish vazifasi hali to'liq amalga oshirilishidan ancha uzoqdir. Qoida tariqasida, mavjud tizimlar alohida tashkilotlarning faoliyatini qamrab oladi va tashkilotlar o'rtasida ma'lumotlar almashinuvi an'anaviy qog'oz hujjatlar yordamida amalga oshiriladi.

Ma'lumotni qog'ozdan elektron ommaviy axborot vositalariga o'tkazish vazifasi nafaqat ish oqimi tizimlarida yuzaga keladigan ehtiyojlar doirasida dolzarbdir. Zamonaviy axborot texnologiyalari, agar ular elektron shaklga o'tkazilsa, insoniyat tomonidan to'plangan axborot resurslariga kirishni sezilarli darajada soddalashtirishga imkon beradi.

Eng oson va tezkor-bu skanerlar yordamida hujjatlarni skanerlash. Ishning natijasi hujjatning raqamli tasviri-grafik fayl. Grafik bilan taqqoslaganda, ma'lumotlarning matnli ko'rinishi afzalroqdir. Ushbu parametr ma'lumotni saqlash va uzatish xarajatlarini sezilarli darajada kamaytiradi, shuningdek elektron hujjatlardan foydalanish va tahlil qilishning barcha mumkin bo'lgan stsenariylarini amalga oshirishga imkon beradi. Shu sababli, amaliy nuqtai nazardan eng katta qiziqish qog'oz tashuvchilarni matnli elektron hujjatga tarjima qilishdir. Tanib olish tizimi hujjat sahifasining bitmapini oladi. Tanib olish algoritmlarining ishlashi uchun kirishga kiradigan rasm iloji boricha yuqori sifatli bo'lishi maqsadga muvofiqdir. Agar rasm shovqinli, aniq bo'lmagan, past kontrastga ega bo'lsa, unda bu tanib olish algoritmlarining vazifasini murakkablashtiradi.

Tanib olish usullari.

Matnga asoslangan dasturiy ta'minotni ishlab chiqish usullari kompyuter tizimlariga matn ma'lumotlarini avtomatik ravishda tanib olish va talqin qilish imkonini beruvchi texnologiyalar va algoritmlar to'plamidir.

Ushbu usullar quyidagi asosiy yondashuvlarni o'z ichiga oladi:

1. Optik tanib olish belgilari: ushbu usul matn tasvirlarini tahlil qilish va uni elektron formatga o'tkazish uchun algoritmlardan foydalanadi. Optik tanib olish belgilari kompyuterlarga qo'lda yoki maxsus shriftlarda yozilgan bosma matnni tanib olish imkonini beradi.

2. Neyron tarmoqlari: ushbu usul matnni tanib olishga o'rgatilgan sun'iy neyron tarmoqlardan foydalanishga asoslangan. Neyron tarmoqlari katta hajmdagi ma'lumotlarni qayta ishlashi va matnning alohida qismlarini sozlashi mumkin, bu ularga yuqori aniqlikka erishishga imkon beradi.

3. Statistik usullar: ushbu yondashuv matnni aniqlash uchun statistik modellar va algoritmlardan foydalanishga asoslangan. U chastotani tahlil qiladi va natijalarning eng ehtimoliy variantlarini aniqlash uchun matndagi turli belgilar va so'zlarni ko'rib chiqadi.

4. Mashinani o'rganish: ushbu usul yangi matn namunalariiga moslashish uchun mashinani o'rganish algoritmlaridan foydalanadi. U tizimni katta hajmdagi ma'lumotlarga asoslanib o'rgatadi va unga matnni aniqlashni mustaqil ravishda sozlash va takomillashtirish imkonini beradi.

Dasturiy ta'minotni ishlab chiqishning bunday usullari ofis jarayonlarini avtomatlashtirish, hujjatlarni qayta ishlash, mashinani tarjima qilish va boshqalar kabi turli sohalarda Markaziy o'rinni egallaydi. Ular kompyuterlarga matnli ma'lumotlar bilan samarali ishlashga imkon beradi va ko'plab jarayonlarni sezilarli darajada soddalashtiradi va avtomatlashtiradi.

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PROGRAMMING INDUSTRIAL ROBOTS TO INCREASE PRODUCTIVITY.

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Anotation: This article is devoted to the study of the effects of industrial robot programming on increasing productivity. The article provides information about the role of industrial robot programming automation in expanding the capabilities of an important process in the production efficiency, error reduction and economical use of work resources. What methods of programming can increase productivity are also briefly described. The paper also covered previous field research, data, and important concepts, and then covered what devices and algorithms industrial robot programming can be implemented with. The article calls for the support of innovations in the industry and the possibility of updating industrial systems. At the end of the article, the importance of industrial robot programming and the importance of future development in this area are presented.

Keywords: industry, robot, programming, automation, industry, work, productivity, analysis, time, error management, workforce, innovations, optimization, product.

Introduction

The industrial sector is developing at a high level in the direction of improving performance and reducing errors using the programming and automation of industrial robots. Industrial robot programming is bringing about major changes in the industry, as these processes help to increase the speed of production, efficiency and the possibility of producing high-quality products. Programming includes tasks such as defining automatic work processes, making connections between robots and computer systems, analyzing work routines and collecting data, analyzing and making data-based decisions. Through these processes, industrial robots, self-control, and sensing changes in industry requirements, increase the ability to perform and optimize work automatically. The productivity of industrial robot programming is very large, which makes it possible

to optimize performance by reducing the additives that these processes cause low prices, labor and errors. Robots and computers can work with a high degree of correctness in reproducing what a person has done, and with low non-occurrence of errors. In addition, they allow you to use energy time sparingly to work for a long time. With the help of industrial robot programming, opportunities arise to optimize the order of work, efficiently use Work resources, reduce errors caused in production and establish new innovations. In doing so, robots and automatic systems allow for tasks such as self-control, data collection and analysis, performing actions and manipulations, and monitoring performance. Industrial robot programming has its own problems and disadvantages in increasing productivity. In some jobs, problems can arise when programming is making mistakes, setting the order of work correctly, and optimizing

Literature Analysis And Methods

In industrial systems, robots and automatic devices help optimize performance, improve performance and expand the workforce. Industrial robot programming, on the other hand, is the primary means of implementing these critical foundations. This allows robots to receive, analyze, make decisions, and perform their actions. Programming allows robots to learn and perform field skills, work routines, and use of job resources with efficiency. To increase the productivity of industrial robot programming, first of all, it is necessary to choose the programming language and platform. It is required to understand the tasks that robots must perform, create algorithms, and build a program to define the actions of the robot. The correct choice of a programming language and the efficient execution of the program-building process depends on a large part of increasing productivity. Robots allow facilities that can operate 24 hours in a different way than humans, operate at speed and accuracy, use energy time with efficiency, and produce high-quality products.

Improving work efficiency through automation

Industrial robot programming has had significant success in increasing automation, allowing for improved performance. With programming, robots can have the ability to automatically work and control themselves in workplaces. This optimizes performance, minimizing error and unexpected directions.

Relief of work in the working environment and working conditions

Programming industrial robots plays an important role in alleviating the work environment and working conditions. With programming, robots do the job automatically, which reduces the work line, speeds up work processes and increases participation in the job. This results in industrial organizations that have

the time to join the work and the ability to manage resources efficiently, being able to see their benefits.

Reduce errors and get the job done correctly

Using programming, it allows you to control industrial robots, remove errors to a minimum and perform the work correctly. The correct and shorter programming makes it possible to improve communication between robots and operators and get the job done correctly. This ensures that industrial robots are added to the work, which effectively remove work and errors to a minimum.

Production of high-quality products in the industrial sector

Programming industrial robots makes it possible to produce products in the industrial sphere in a high-quality and satisfying State for consumers. With programming, robots do the job correctly and completely, removing errors to a minimum and optimizing the job.

Development of new industrial robots

The successes, developments and changes achieved in improving the productivity of industrial robot programming have been presented. These results contributed to the high-performance deployment of automation and robotization processes in the industry. The successes in the field of programming industrial robots, along with new technologies and innovations, ensure the ability of industrial organizations to increase the efficiency of work, minimize errors, improve the working environment and produce high-quality products. This ensures that development and work in the industry are optimized.

Result

There are several benefits of industrial robot programming for industrial organizations: Performance optimization: programming industrial robots, allows you to optimize performance. The fact that robots do things through programs that work automatically can save time and resources. This will speed up work processes, remove errors to a minimum and increase work efficiency

Removal of errors to a minimum: programming industrial robots allows you to remove errors to a minimum. By programming, robots perform the work correctly and completely, errors in the work processes are removed to a minimum. This reduces costs in work processes and increases the quality of the product.

Improving the working environment and working conditions: programming industrial robots, allows you to improve the working environment and working conditions. Robots work automatically in the workplace, which relieves work processes and increases job attendance. This follows the work environment to ensure effective organization of work.

Increase worker safety: programming industrial robots, helps increase worker safety. Robots perform their work in risky and dangerous situations through automatically working programs, and also allow industrial organizations not to provide workers with potentially dangerous jobs to ensure worker safety.

Ease of maintenance and management: allows for the ease of programming, robot maintenance and management of industrial robots. With the help of programs, it becomes easier to manage robots in a systematic and effective way, give them tasks and get information from them. This simplifies the management of the performance of industrial organizations and increases the effectiveness of management.

Or programming industrial robots, allowing you to create new technologies and innovations. This helps industrial organizations apply advanced innovation in development and manufacturing.

The benefits that industrial robot programming can bring to industrial organizations include improved work environment, optimized work performance, minimized error, increased worker safety, facilitated maintenance and management, and opportunities to create innovations. This increases the effectiveness of industrial organizations and allows them to develop.

Conclusion

Throughout the article, the importance of programming industrial robots and their role in increasing productivity are the main ones. Industry innovation and innovation support, industrial system upgrades and automation, production performance optimization, and Workforce Expansion are cited as appropriate topics. At the end of the article, important aspects of future development of industrial robot programming and their role in the industry are highlighted.

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РАСЧЕТ ЭКРАНИРОВАНИЯ ПРИ ИОННОМ РАССЕЙВАНИИ В АМОРФНОМ КРЕМНИИ МЕТОДОМ КОМПЬЮТЕРНОГО МОДЕЛИРОВАНИЯ

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Аннотация: Построена компьютерная модель рассеяния ионов на атомах в аморфном полупроводнике при низкой температуре. Численно рассчитана и проанализирована зависимость рассеивающего потенциала от учета экранирования.

Ключевые слова: экспериментальных элементов, аморф, кристалл, кристаллических структурах

Введение. В настоящее время аморфный кремний выступает в качестве более дешевой альтернативы монокристаллическому. Первые солнечные элементы на его основе были созданы в 1975 году. Оптическое поглощение аморфного кремния в 20 раз выше, чем кристаллического. Поэтому для существенного поглощения видимого света достаточно пленки а-Si:H толщиной 0,5–1,0 мкм вместо дорогостоящих кремниевых 300-мкм подложек [9,10]. Кроме того, благодаря существующим технологиям получения тонких пленок аморфного кремния большой площади не требуется операции резки, шлифовки и полировки, необходимых для солнечного элемента на основе монокристаллического кремния. По сравнению с поликристаллическими кремниевыми элементами изделия на основе а-Si:H производят при более низких температурах (300°C): можно использовать дешевые стеклянные подложки, что сократит расход кремния в 20 раз. Пока максимальный КПД экспериментальных элементов на основе а-Si:H – 12% – несколько ниже КПД кристаллических кремниевых солнечных элементов (~15%). Однако не исключено, что с развитием технологии КПД элементов на основе а-Si:H достигнет теоретического потолка – 16%. В отличие от кристаллических веществ, для которых теория электронных состояний глубоко разработана, теоретическое изучение аморфных полупроводников сталкивается с рядом сложных проблем. В кристаллических структурах атомы и молекулы расположены упорядоченно на любом расстоянии по всем трем измерениям. Аморфными веществами называют такие, у которых, в отличие от кристаллов, на дальних расстояниях упорядоченность структуры отсутствует. Такие материалы получают при быстром охлаждении вещества, находящегося в жидкой или газообразной фазе. Главное их

достоинство — низкая стоимость производства. Из-за отсутствия дальнего порядка структура электронных уровней аморфных полупроводников отлична от уровневой структуры кристаллических полупроводников. Различие, однако, не так уж велико:

-аморфные полупроводники имеют почти такие же энергетические зоны, которые отличаются лишь “хвостами”, соответствующими локальным уровням в запрещенной зоне;

-область между порогами подвижности валентной зоны и зоны проводимости называют щелью подвижности. Она является аналогом запрещенной зоны в кристаллических полупроводниках;

Изменяя присадками различных примесей структуру уровней в щели подвижности, можно управлять полупроводниковыми свойствами вещества. Производство структур на основе монокристаллического кремния – процесс технологически сложный и дорогостоящий. Поэтому внимание было обращено на такие материалы, как сплавы на основе аморфного кремния а-Si:H.

Результаты и обсуждение. Изучение аморфных полупроводников подвергая их ионной бомбардировке является одним из основных методов исследования этих материалов:

а) форма угловой зависимости рассеянных ионов дает информацию о потенциальной энергии взаимодействия между атомами и каналированными или отраженными ионами ;

б) профили распределения по глубине каналированных ионов дает информацию о структуре аморфного материала [1-6].

Моделирование движения частиц в аморфном материале в применяемых алгоритмах основывается на двух допущениях. Рассматриваются лишь парные столкновения иона с атомами мишени, а путь, проходимый ионом между столкновениями, представляется в виде отрезков прямых линий [1].

Параллельный однородный моноэнергетический пучок не взаимодействующих между собой ионов падает на прицельную площадку на поверхности материала. Форма прицельной площадки выбирается из условия, чтобы ее трансляцией можно было покрыть всю поверхность.

При необходимости число разбиений прицельной площадки может быть увеличено. При рассмотрении траекторий каналирования точки входа ионов в материал (координаты точек прицеливания) равномерно покрывали часть элементарной ячейки составленной из атомов ближнего порядка, представляющей собой поперечное сечение осевого канала.

Плоскость падения ионов составляет с выбранным направлением угол ξ (азимутальный угол падения), а начальное направление ионов образует с поверхностью угол ψ (угол между вектором начальной скорости иона и нормалью к поверхности материала).

Начальное направление падающего на поверхность иона задается через проекции единичного вектора $\vec{l}_0(l_0, m_0, n_0)$ на координатные оси:

$$\begin{aligned} l_0 &= \cos \psi \cos \xi \\ m_0 &= \cos \psi \sin \xi \end{aligned} \quad (1)$$

$$n_0 = -\sin \psi$$

Атом на поверхности, с которым происходит первое взаимодействие налетающего иона, определяется следующим образом. Определяется точка на поверхности, расстояние до которой от начального направления иона равно P_{cp} (граничный прицельный параметр) и выбирается атом с целочисленными координатами в окрестности этой точки, с которым и рассчитывается взаимодействие. Схема классического рассеяния налетающего иона на этом, первоначально неподвижном атоме мишени в ЛСК, представлена на рис.1.

[1]. Как отмечалось выше, единичный вектор $\vec{l}_0(l_0, m_0, n_0)$ определяет начальное направление иона и проходит через точку прицеливания $X(x, y, z)$. Наименьшее расстояние (прицельный параметр) налетающего иона до атома мишени с координатами $X_0(x_0, y_0, z_0)$ определяется выражением:

$$p = \frac{\sqrt{\begin{vmatrix} y_0 - y & z_0 - z \\ m_0 & n_0 \end{vmatrix} \begin{vmatrix} z_0 - z & x_0 - x \\ n_0 & l_0 \end{vmatrix} \begin{vmatrix} x_0 - x & y_0 - y \\ l_0 & m_0 \end{vmatrix}}}{\sqrt{l_0^2 + m_0^2 + n_0^2}} \quad (2)$$

Углы рассеяния иона θ_1 и атома мишени, называемого атомом отдачи, θ_2 и координаты точки перегиба траектории X_1 (точки пересечения асимптот) (рис.1) определялись в результате вычисления интегралов рассеяния и времени.

Для определения направлений траекторий рассеянного иона $\vec{l}_1(l_1, m_1, n_1)$, $\vec{l}_2(l_2, m_2, n_2)$ и атома отдачи $\vec{l}(l, m, n)$ кроме знания углов θ_1 и θ_2 необходимо установить положение точки пересечения асимптот траекторий взаимодействующих частиц X_1 [1].

Из рис.1. видно, что точка пересечения асимптот $X_1(x_1, y_1, z_1)$ находится на некотором расстоянии от проекции $X_p(x_p, y_p, z_p)$ исходного положения атома мишени на первоначальное направление движения иона:

$$\Delta = \left[(1+f)\tau + (f\mu - 1)ptg \frac{x}{2} \right] / f(1+\mu) \quad (3)$$

где
$$f = \left[1 - \frac{1+\mu}{\mu} \frac{\varepsilon(E_0, p)}{E_0} \right]^{1/2}$$

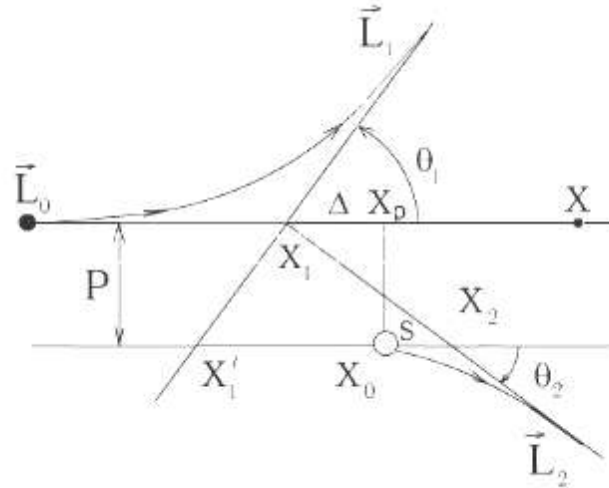


Рис.1. Схема классического рассеяния налетающей частицы на первоначально неподвижном атоме мишени в ЛСК [1].

Положение точки $X_p(x_p, y_p, z_p)$ определяется с помощью выражений:

$$\begin{aligned} x_p &= [l_0 t + m_0(m_0 x - l_0 y) + n_0(n_0 x - l_0 z)] / u, \\ y_p &= [l_0(l_0 y - m_0 x) + m_0 t + n_0(n_0 y - m_0 z)] / u, \\ z_p &= [l_0(l_0 z - n_0 x) + m_0(m_0 z - n_0 y) + n_0 t] / u, \end{aligned} \quad (4)$$

где $t = l_0 x_0 + m_0 y_0 + n_0 z_0, \quad u = l_0^2 + m_0^2 + n_0^2$

Тогда для $X_1(x_1, y_1, z_1)$ можно написать:

$$\begin{aligned} x_1 &= x_p - l_0 \Delta / \sqrt{u}, \\ y_1 &= y_p - m_0 \Delta / \sqrt{u}, \\ z_1 &= z_p - n_0 \Delta / \sqrt{u} \end{aligned} \quad (5)$$

Из сферической симметричности потенциала взаимодействия между двумя частицами следует, что начальное \vec{L}_0 и конечное \vec{L}_1 направления рассеянного иона, координаты исходного положения атома мишени

$X_0(x_0, y_0, z_0)$ и его конечное направление \vec{L}_2 лежат в одной плоскости. Тогда, зная координаты точек X_1, X_1 и X_2 можно с помощью управления прямой, проходящей через две точки, определить конечные направления иона и атома отдачи.

Путь частицы в материале прослеживается специальной процедурой поиска, которая зависит от способа задания блока атомов мишени. В описываемом алгоритме процедура поиска состоит в том, что вокруг атома, с которым произошло столкновение, последовательно задаются координаты ближайших соседей на двух координационных сферах, в соответствии с типом материала структуры мишени. При этом для каждого задаваемого атома проверяется выполнение следующих условий: 1) он должен находиться в передней полусфере координационных сфер относительно точки пересечения асимптот направлений движения налетающего иона; 2) прицельный параметр P до него должен быть меньше P_{sp} ; 3) среди проверенных атомов он должен стоять первым (по времени) в очереди последовательных столкновений. Проверкой этих условий для всех атомов, находящихся на двух координационных сферах, определяется искомый атом и рассчитывается последовательно, изменение траектории иона после взаимодействия с этим атомом, т.е. определяются угол рассеяния, энергии и новое направление движения иона и при необходимости те же параметры для атома отдачи. Для дальнейшего поиска этот атом служит центром следующих двух координационных сфер. Таким образом путь частицы в материале прослеживается переносом центра координационных сфер по атомом материала, сталкивающимся с ионом. Описанная процедура повторяется до тех пор пока не перебирается весь выбранный блок атомов материала. При этом частица либо вылетает с тыльной стороны тонкого материала, либо застревает в нем, если ее энергия становится меньше E_d - энергии смещения.

В основе рассмотрения взаимодействия ионов с твердыми телами лежит задача о столкновении двух частиц. Она является сложной задачей многих тел, так как происходит столкновение частиц состоящих из ядра и большого числа электронов. Ввиду большой разницы масс электронов и ядер столкновения делят на упругие (ядерные) и неупругие (электронные) столкновения. Упругие столкновения характеризуются сохранением кинетической энергии и импульса движущейся частицы и атома твердого тела, с которым произошло столкновение. Под неупругими подразумеваются

столкновения, при которых происходят возбуждение электронов и ионизация сталкивающихся частиц. Как в упругих так и в неупругих столкновениях взаимодействие обусловлено кулоновскими силами между зарядами ядер и электронов. При рассмотрении упругих столкновений полагают, что роль электронов сводится, в основном, к электростатическому экранированию зарядов и ядер.

Рассмотрим потенциалы взаимодействия двух частиц с массами M_1 и M_2 и атомными номерами Z_1 и Z_2 . Ограничимся рассмотрением лишь сферически симметричных потенциалов отталкивания. В случае резерфордовского рассеяния кулоновский потенциал имеет вид:

$$V(r) = k \frac{Z_1 Z_2 e^2}{r} \quad (6)$$

где r - расстояние между атомами; e - заряд электрона; k - коэффициент пропорциональности;

Бор предложил для упругих столкновений учитывать экранирование следующим образом:

$$V(r) = k \frac{Z_1 Z_2 e^2}{r} e^{-\frac{r}{a}} \quad (7)$$

где a - радиус экранирования, представленный Бором в виде

$$a = a_0 \sqrt{Z_1^{2/3} + Z_2^{2/3}} \quad (8)$$

где a_0 - радиус первой боровской орбиты; m - масса электрона; h - постоянная Планка;

$$a_0 = \frac{\hbar^2}{m e^2} = 0,529 \text{ \AA} \quad (9)$$

Отметим, что часто используется обратноквадратичная аппроксимация боровского потенциала по Линдхарду:

$$V(r) = \frac{Z_1 Z_2 e^2 a}{2r^2} \quad (10)$$

Здесь $\frac{2}{3} = 2 / (2,7183 * 0,8853)$, радиус экранирования a определяется формулой

$$a = 0,8853 a_0 \frac{1}{\sqrt{Z_1^{2/3} + Z_2^{2/3}}} \quad (11)$$

При численных расчетах рассматривалось рассеяние альфа частиц на атомах гидрогенизированного аморфного кремния a-Si:H.

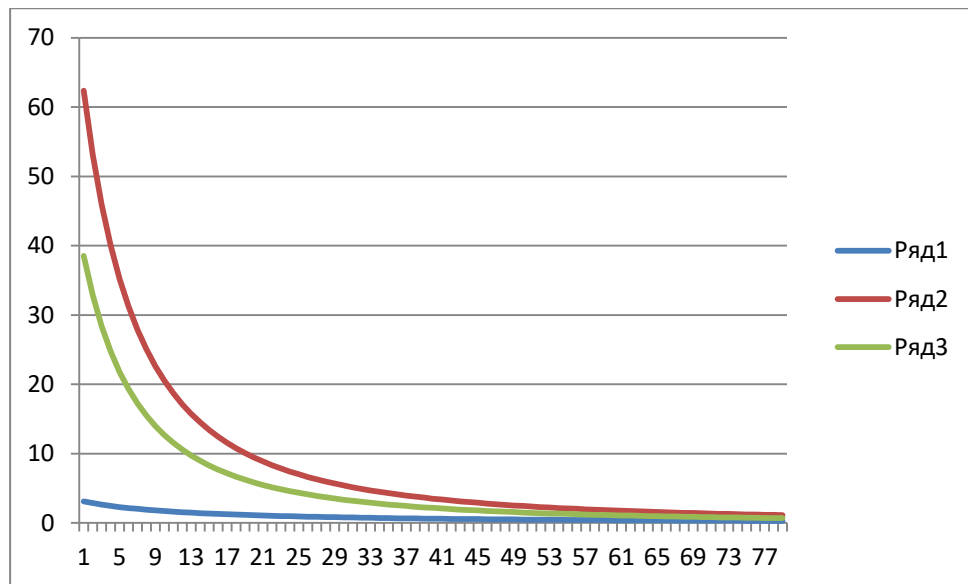


Рис 2. Приведены потенциальные энергии системы взаимодействующих

частиц как функция расстояния: 1 – Резерфордское рассеяние, 2 - Боровское рассеяние, 3- рассеяние по Линдхарду.

Данная работа посвящено анализу изменения потенциальной энергии сталкивающихся частиц как функции расстояния. На рис 2. приведены потенциальные энергии системы взаимодействующих частиц как функция расстояния: 1 – Резерфордское рассеяние рассчитанное по выражению (6), 2 - Боровское рассеяние рассчитанное по выражению (7), 3- рассеяние по Линдхарду с использованием формулы (10). Рассматривался модель рассеяния α частиц на атомах α -Si:H . При численных расчетах использовались параметры α частиц и Si рисунок 1. а также α частиц и H рисунок 3.

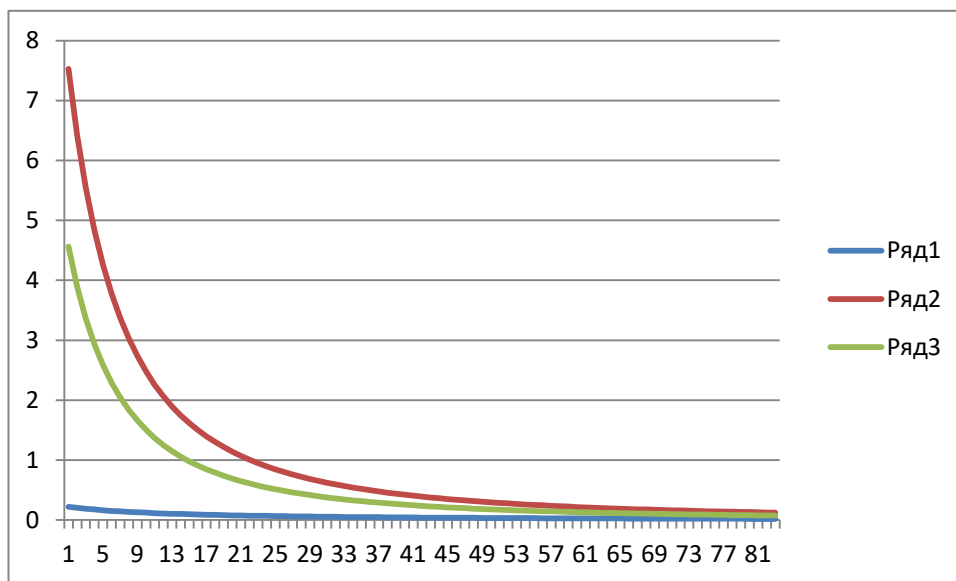


Рис 3. Приведены потенциальные энергии рассеяния α частиц на атомах

примеси Н: 1 – Резерфордское рассеяние, 2 - Боровское рассеяние, 3- рассеяние по Линдхарду.

Обычно концентрация примеси Н в а-Si:H на несколько порядков меньше концентрации атомов Si, не смотря на это существенная разница расчета потенциалов (сравнение рисунков 2 и 3) требует учитывать, при численном моделировании, вклады рассеяния ионов и на примесях для построения общей картины отражения и каналирования.

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БУЛЬ ФУНКЦИЯЛАРИ МОДЕЛЛАРИДАН КРИПТОГРАФИК АКСЛАНТИРИШЛАРДА ФОЙДАЛАНИШ УСУЛЛАРИНИНГ ТАДҚИКИ

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Анноттациа: Мақолада Буль функцияларини чинлик жадвали асосида моделлаштириш усуллари ва ушбу жадвалга асосланмаган ҳолда қуриш усуллари келтирилган.

Калим сўзлар: Буль функцияси, акслантириш, криптографик алгоритмлар, коэффициент

Криптографик акслантиришларнинг Буль функцияларини чинлик жадвали асосида моделлаштириш мумкин [1, 2, 3]. Адабиётлар рўйхатида келтирилган [1]-манбаада акслантиришнинг Буль функциясини чинлик жадвали асосида қуриш мумкинлиги айтилиб, қуриш усули ва жараёни мураккаблиги тақидланади. [2]-манбаада, акслантириш чинлик жадвали берилганда, унинг Буль функциясини қуришнинг умумий усули ишлаб чиқилиб, унинг мураккаб эмаслиги кўрсатилган.

Акслантириш ўзгарувчиларининг сони кўпайишига боғлиқ ҳолда чинлик жадвали ҳажми кескин ортади. Буль функция (БФ) ўзгарувчилари сони $n = 4$ та (x_1, x_2, x_3, x_4) , $x_i \in \{0,1\}$, бўлганда, бу ўзгарувчилар векторининг ҳар-хил ҳолатларига $\{0,0,0,0\}; \{0,0,0,1\}; \{0,0,1,0\}; \{0,0,1,1\}; \dots, \{1,1,1,1\}$; мос келувчи мумкин бўлган барча қийматлар $0000 = 0; 0001 = 1; 0010 = 2; 0011 = 3; \dots, 1111 = 15$; сони $2^n = 2^4 = 16$ та бўлади. $n = 5$ да $2^5 = 32$, $n = 6$ да $2^6 = 64$, $n = 7$ да $2^7 = 128$, $n = 8$ да $2^8 = 256$, $n = 9$ да $2^9 = 512$, ва хоказо. Умумий ҳолда ўзгарувчилар сони n та бўлганда (x_1, x_2, \dots, x_n) -векторнинг қабул қилиши мумкин бўлган барча қийматлари тўплами $\{0;1;2;\dots;2^n - 1\}$ бўлади. Криптографик алгоритмларда ўзгарувчилар сони $n = 16, 32, 64, 128$ каби бўлган акслантиришлардан фойдаланилади [4, 5]. ГОСТ 28147-89 шифлаш алгоритмида

$$[k(32 \text{ бит}) + m(32 \text{ бит})] \bmod 2^{32} = z(32 \text{ бит}) \quad (1)$$

акслантиришдан, AES-FIPS 197 шифрлаш алгоритмида байтларни кўпайтириш

$$s(8 \text{ бит}) \cdot k(8 \text{ бит}) = n(8 \text{ бит}) \quad (2)$$

акслантиришларидан фойдаланилади.

Характеристикаси 2^{32} бўлган чекли майдонда қўшиш амалига асосланган акслантиришнинг Буль функциясини, унинг чинлик жадвали асосида тузиш учун 2^{64} та 64 битлик ҳар хил векторларга мос келувчи 2^{32} та 32 битлик векторлардан фойдаланишга тўғри келади. Бу ҳолат чинлик жадвали асосида унга мос келувчи Буль функциясини моделини тузишни мураккаблаштиради.

Шифрлаш алгоритмлари акслантиришларини умумий ҳолда $GF(2)^n = \{x = (x_1, x_2, \dots, x_n) \in X : x_i \in \{0;1\}\}$ – фазо элементларини бирор амал ёки амалларнинг чекли сондаги кетма-кетлиги орқали бошқа $GF(2)^m = \{y = (y_1, y_2, \dots, y_m) \in Y : y_i \in \{0;1\}\}$ – фазо элеменларига алмаштириш деб караш мумкин ва у Буль функциялар кринишида қуйидагича ифодаланади:

$$Y = f(X) : GF(2)^n \rightarrow GF(2)^m$$

Бу акслантириш ифодасидаги вектор-функция ушбу $f(x) = \{f_1(x), f_2(x), \dots, f_m(x)\}$ кўринишида тасвирланади, бу ерда $x_i, y_i \in GF(2)$, яъни $x_i, y_i \in \{0;1\}$.

Акслантиришларнинг криптографик хусусиятлари очик маълумот блоки элементлари, “калит” деб аталувчи махфий параметр ва оралик алмаштиришлар натижалари блоки элементлари устида бажарилиши керак бўлган амалларни жадваллар, тенглик, тенгсизлик ҳамда тегишлилик муносабатлари билан ифодаловчи математик моделнинг чинлик жадвали асосида қурилган унга мос келувчи БФ хоссалари орқали ўрганилади.

БФ ифодалари учун алгебраик нормал форма (АНФ) деб аталувчи қуйидаги

$$f(x) = a_0 \oplus \sum_{1 \leq i \leq n} a_i x_i \oplus \sum_{1 \leq i_1 < i_2 \leq n} a_{i_1 i_2} x_{i_1} x_{i_2} \oplus \dots \oplus \sum_{1 \leq i_1 < \dots < i_k \leq n} a_{i_1 \dots i_k} x_{i_1} x_{i_2} \dots x_{i_k} \oplus \dots \oplus a_{12 \dots n} x_1 x_2 \dots x_n$$

бу ерда $x \in GF(2)^n$ ва коэффициентлар $a_0, a_i, a_{i_1 i_2}, \dots, a_{12 \dots n} \in GF(2)$, кўринишдан фойдаланилади.

Ушбу мақолада акслантириш ўзгарувчилари сони $n = 4, 8, 16, 32, 64, 128$, ва ҳоказо бўлганда унинг чинлик жадвалига асосланмаган ҳолда Буль функция моделини тузиш имконини берувчи усул яратилган.

$n = m = 4$ бўлганда ушбу чинлик жалвалига кўра

	x_1	x_2	x_3	x_4	f_1	f_2	f_3	f_4	
0	=	0	0	0	0	0	1	0	= 2
1	=	0	0	0	1	0	1	1	= 3

2	=	0	0	1	0	0	1	0	0	=	4
3	=	0	0	1	1	0	1	1	1	=	7
4	=	0	1	0	0	1	0	1	1	=	11
5	=	0	1	0	1	1	1	0	1	=	13
6	=	0	1	1	0	1	1	1	1	=	15
7	=	0	1	1	1	1	1	1	0	=	14
8	=	1	0	0	0	0	0	0	0	=	0
9	=	1	0	0	1	0	1	1	0	=	6
10	=	1	0	1	0	1	0	0	0	=	8
11	=	1	0	1	1	1	1	0	0	=	12
12	=	1	1	0	0	1	0	1	0	=	10
13	=	1	1	0	1	0	0	0	1	=	1
14	=	1	1	1	0	0	1	0	1	=	5
15	=	1	1	1	1	1	0	0	1	=	9

унинг $f(x_1, x_2, x_3, x_4) = (f_1, f_2, f_3, f_4)$ Буль функцияси модели куйидагича бўлади [2,3]:

$$f_1 = \bar{x}_1 x_2 \bar{x}_3 \bar{x}_4 \oplus \bar{x}_1 x_2 \bar{x}_3 x_4 \oplus \dots \oplus x_1 x_2 \bar{x}_3 \bar{x}_4 \oplus x_1 x_2 x_3 x_4$$

$$f_2 = \bar{x}_1 \bar{x}_2 x_3 \bar{x}_4 \oplus \bar{x}_1 \bar{x}_2 x_3 x_4 \oplus \dots \oplus x_1 \bar{x}_2 x_3 x_4 \oplus x_1 x_2 x_3 \bar{x}_4$$

$$f_3 = \bar{x}_1 \bar{x}_2 \bar{x}_3 \bar{x}_4 \oplus \bar{x}_1 \bar{x}_2 \bar{x}_3 x_4 \oplus \dots \oplus \bar{x}_1 x_2 x_3 \bar{x}_4 \oplus x_1 x_2 \bar{x}_3 \bar{x}_4$$

$$f_4 = \bar{x}_1 \bar{x}_2 \bar{x}_3 x_4 \oplus \bar{x}_1 \bar{x}_2 x_3 x_4 \oplus \dots \oplus x_1 x_2 x_3 \bar{x}_4 \oplus x_1 x_2 x_3 x_4$$

Чинлик жадвали ва $f_i (i=1,2,3,4)$ функциялари ифодаларига эътибор берилса, куйидаги хусусиятларни кузатиш мумкин:

0 дан 15 бўлган сонларга худди шу сонлар аралаш бир қийматли мос кўйилган;

$f_j (j=1,2,3,4)$ - устундаги “0” ва “1” лар сони $2^4 : 2 = 2^3 = 8$ тадан иборат;

$f_j (j=1,2,3,4)$ - функциялар ифодаларида $2^4 : 2 = 2^3 = 8$ тадан бир бирига ўхшамайдиган хадлар мавжуд. Мана шу бир-бирига ўхшамайдиганлар $2^4 : 2 = 2^3 = 8$ та хад мосликни таъминлашнинг етарлилик шarti ҳисобланади;

Агар $f_j (j=1,2,3,4)$ - функциялар ифодаларида $2^4 : 2 = 2^3 = 8$ тадан кам бўлган бир-бирига ўхшамайдиган хадлар қатнашса бир қийматли мослик бузилади.

Бевосита ҳисоблашлар орқали 1-4 хусусиятларни ихтиёрий $n = 2^k, k = 2, 3, \dots, N < \infty$ бўлганда ҳам сақланишига ишонч ҳосил қилиш мумкин. Шундай қилиб, $n (n = 4, 8, 16, 32, 64, 128, \dots < \infty)$ бўлганда чинлик жадвалига

асосланмаган ҳолда 0 дан $2^n - 1$ гача бўлган сонларга худди шу сонларни аралашмасига бир қийматли мослик ўрнатувчи $F = f(x_1, x_2, \dots, x_n) = (f_1, f_2, \dots, f_n)$ Буль функцияси модели f_j -компоненталарининг ҳар бири барча $x_i (i = 1, 2, \dots, n)$ ўзгарувчиларнинг ўзи ёки улар инкорлари конъюнкциясидан иборат $2^n : 2 = 2^{n-1}$ та (жуфт-жуфти билан) бир-бирига ўхшамайдиган хадларининг \oplus - XOR амали билан ифодаланган, ушбу:

$$f_j = x_1^{(1)}(j) \dots x_n^{(1)}(j) \oplus x_1^{(2)}(j) \dots x_k^{(2)}(j) \dots x_n^{(2)}(j) \oplus \dots \oplus x_1^{(2^{n-1})}(j) \dots x_n^{(2^{n-1})}(j) \quad (3)$$

бу ерда $j=1, \dots, n$; $1 \leq k \leq n$; $x_k^{(t)} \in \{x_k, \bar{x}_k\} (1 \leq t \leq 2^{n-1})$ кўринишдаги Буль функциялари билан аниқланувчи устунлардан иборат бўлади. (3) ифодада 2^{n-1} дан кам сондаги хадларни қатнашиши бир қийматли мосликни бузилишига олиб келади.

Хулоса ўрнида қуйидагиларни таъкидлаш лозим:

1) 2^{n-1} дан ҳар қандай l таси ($1 \leq l \leq 2^{n-1} - 1$) қатнашганда бир қийматли мосликни бузилиши қонуниятларини ўрганиш баъзи криптотахлил масалаларини ечишга имкон беради.

2) 2^{n-1} тадан кўп хадни қатнашиши қонуниятларини ўрганиш ва уларнинг қўлланиш усулларини топиш ҳам криптографияни ривожланишига самарали таъсир этади.

Юқоридаги хулоса ва натижалардан криптографик бардошлилик масалалари ечимида қўлланиладиган бент функцияларни куришда ҳам фойдаланиш мумкин.

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KIBERXAVFSIZLIK SOHASIDA KRIPTOGRAFIK PROTOKOLLARNING AHAMIYATI VA ULARNING TAHLILI

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Annotatsiya: Ushbu maqolada kiberxavfsizlikni ta'minlashda kriptografik protokollarning turlari va ularga bo'ladigan tahdidlardan himoyalash usullari to'g'risida ma'lumot berilgan.

Kalit so'zlar: kriptografik protokollar, kiberxavfsizlik, autentifikatsiya, kibertahdidlar.

Kirish. Kriptografik protokollarni tarmoq orqali ikki yoki undan ortiq tomonlar o'rtasida xavfsiz aloqa va ma'lumot almashishni tartibga soluvchi qoidalar va protseduralar to'plami sifatida aniqlash mumkin. Ushbu protokollar ma'lumotlarning maxfiyligi, yaxlitligi va haqiqiylikini ta'minlash uchun kriptografik algoritmlardan foydalanadi.

Kriptografik protokollar raqamli dunyoda ma'lumotlarning xavfsizligi va maxfiyligini ta'minlashda hal qiluvchi rol o'ynaydi. Kriptografik protokollarga bo'lgan ehtiyoj raqamli aloqaning o'ziga xos zaifliklaridan kelib chiqadi.

Axborot tarmoqlar bo'ylab harakatlanar ekan, u ushlab, buzish va ruxsatsiz kirishga moyil bo'ladi. Kriptografik protokollar ushbu tahdidlarni bartaraf etish va ma'lumotlar almashinuvi uchun xavfsiz asosni ta'minlash uchun ishlab chiqilgan.

Asosiy qism

Kriptografik protokollar ikki yoki undan ortiq tomonlar o'rtasidagi aloqani ta'minlash uchun ishlatiladigan qoidalar va protseduralar to'plami. [Kriptografik protokollar shifrlashga](#) asoslangan axborot xavfsizligi tizimlarining ajralmas qismi hisoblanadi. Kriptografik protokollar odatda keng doiradagi [kriptografik algoritmlardan](#) foydalanadi. Ular uzatilayotgan ma'lumotlarning maxfiyligi, yaxlitligi va haqiqiylikini ta'minlash uchun matematik algoritmlarga tayanadi. Kriptografik protokollarni asoslovchi bir nechta asosiy tamoyillar mavjud:

Maxfiylik - kriptografik protokollar faqat vakolatli shaxslar uzatilayotgan ma'lumotlarga kirishi va shifrlanishini ta'minlaydi. Bunga ma'lumotlarni shifrlash usullari orqali erishiladi, bu esa tegishli shifrni ochish kaliti bo'lmasa, uni hech kimga o'qib bo'lmaydi;

Butunlik - kriptografik protokollar ruxsatsiz o'zgartirishlar yoki buzishlarni aniqlash orqali ma'lumotlarning yaxlitligini kafolatlaydi. Bu qabul qiluvchiga olingan ma'lumotlarning haqiqiylik va yaxlitligini tekshirish imkonini beruvchi xesh funksiyalari va raqamli imzolardan foydalanish orqali amalga oshiriladi;

Autentifikatsiya - kriptografik protokollar muloqot qiluvchi tomonlarning shaxsini tekshirish mexanizmlarini taqdim etadi. Bu kimgadir taqlid qilishning oldini olish va ishonchli shaxslar o'rtasida ma'lumotlar almashinuvini ta'minlashda juda muhimdir.

Kriptografik protokolning bir yoki bir nechta xususiyatlarini buzishning mumkin bo'lgan xavfi tahdid deb ataladi. Kriptografik protokolning ishlashiga qasddan ruxsatsiz aralashish orqali amalga oshirilishi mumkin bo'lgan tahdid faol tahdid deb ataladi. Protokol ishtirokchilari sifatida protokolni bajarishda u yoki bu shaklda ishtirok etuvchi subyektlar turli tarmoqlar foydalanuvchilari, aloqa liniyalari abonentlari, turli jarayonlar, masalan, server yoki mijoz ilovalari va boshqalar bo'lishi mumkin. Protokol ishtirokchilarining barcha harakatlari bosqichlar ketma-ketligini tashkil qiladi.

Kriptografik protokolga hujum - protokol ishini buzish yoki uning ishtirokchilari siri bo'lgan ma'lumotlarni olish maqsadida protokol xabarlarini tahlil qilish va protokolda ko'zda tutilmagan harakatlarni bajarishga urinish hisoblanadi. Agar protokol xavfsizligini tavsiflovchi e'lon qilingan xususiyatlardan kamida bittasi buzilgan bo'lsa, hujum muvaffaqiyatli hisoblanadi. Kriptografik protokolning hujumlarga chidamliligi kriptografik mexanizmlarning ishonchliligi, to'g'ri amalga oshirilishi, protokol ishtirokchilari tomonidan belgilangan harakatlar tartibini bajarishning aniqligi kabi omillarga bog'liq.

Kriptografik protokollarning funktsional maqsadiga asosan tasniflash mumkin. Masalan, kelishuv protokollari, autentifikatsiya protokollari, identifikatsiyalash protokollari, ovoz berish protokollari, shartnoma imzolash protokollari, kalitlarni tarqatish protokollari, maxfiy almashish protokollari, raqamli imzo protokollari, elektron to'lov protokollari, sertifikatlangan elektron pochta protokollari va boshqalar.

Kriptografik protokollarga hujumlarni tasniflashning turli yondashuvlari ham mavjud. Misol uchun, ta'sir qilish usuli asosida faol va passiv hujumlar o'rtasida farqlanadi. Eng keng tarqalgan hujumlar quyidagilardir:

O'zgartirish - bu dushman yoki tajovuzkorning xabarni tutib olish va uni boshqa xabar bilan almashtirishdan iborat hujum. Bunday holda, ikkinchisini tanlash ushlangan xabarga bog'liq bo'lishi mumkin;

O'ziga taqlid qilish - bu bir foydalanuvchini boshqasi bilan almashtirishni o'z ichiga olgan hujum. Buzg'unchi tomonlardan biri nomidan gapirgan va uning harakatlariga to'liq taqlid qilgan holda, protokolning individual qadamlarini soxtalashtirish uchun zarur bo'lgan ma'lum bir formatdagi xabarlarini oladi;

Majburiy kechikish hujumi - bu dushman tomonidan xabarni ushlab olish va undan keyingi vaqtda foydalanishni o'z ichiga olgan qayta uzatish hujumi;

Parallel-session hujumi - bu hujum, bunda raqib bir seansdagi xabarlarni boshqasida ishlatish uchun bir vaqtning o'zida bir nechta parallel seanslarni ataylab ochadi;

Dushman tomonidan o'z vositalaridan telekommunikatsiya tuzilishining bir qismi sifatida foydalanish hujumdur, bunda A va B ishtirokchilari o'rtasidagi identifikatsiya protokolida C dushmani telekommunikatsiya kanaliga kiradi va A va B ishtirokchilari o'rtasidagi protokolni amalga oshirishda uning bir qismiga aylanadi. Bunday holda, dushman A va B ishtirokchilari o'rtasida uzatiladigan ma'lumotni almashtirishi mumkin;

O'rtadagi odam hujumi - bu hujumda raqib C ham A ishtirokchisi, ham B ishtirokchisi bilan protokolni bajaradi. Dushman C A ishtirokchisi bilan B nomidan, B ishtirokchisi bilan esa A nomidan seans o'tkazadi. Qabul qilinganda, raqib xabarlarni A dan B ga va orqaga yo'naltiradi, ehtimol ularni soxtalashtirishi mumkin.

Xulosa

Kriptografik protokollarni loyihalash, yaratish, takomillashtirish va yangilashning murakkab jarayoni davom etmoqda. Bu yangi qo'llash sohalarining paydo bo'lishi, mumkin bo'lgan amaliy vaziyatlarning xilma-xilligi va protokollarga yangi talablarni ishlab chiqish, shuningdek, ularning xavfsizligini tahlil qilish bo'yicha doimiy harakatlar bilan bog'liq, buning natijasida tobora ko'proq yangi zaifliklar va hujumlar aniqlanmoqda.

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IOT TEXNOLOGIYALARINI ISHLASH PRINSIPLARI VA UNING FOYDALANISH IMKONIYATLARI

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Annotatsiya. Ushbu tadqiqot IOT (Internet of Things) texnologiyalari, hayotimizni osonlashtirish va turli sohalarda samaradorlikni oshirish uchun ishlab chiqilgan innovatsion yechimlardir. Ushbu annotatsiyada IOTning asosiy ishlash prinsiplari, uning komponentlari va arxitekturasi ko'rib chiqiladi. IOT tizimlari, sensorlar, aktorlar, va bulutli xizmatlar yordamida ma'lumotlarni yig'ish, uzatish va tahlil qilish imkoniyatlarini taqdim etadi. Shuningdek, IOTning qishloq xo'jaligi, sanoat, shahar infratuzilmasi va sog'liqni saqlash kabi sohalardagi qo'llanilishi va imkoniyatlari tahlil qilinadi.

Kalit so'zlar. Internet of Things (IOT), sensorlar, aktorlar, bulutli texnologiyalar, ma'lumotlar tahlili, avtomatlashtirish, aqlli qurilmalar, IoT arxitekturasi.

Internet of Things (IOT) – bu ob'ektlar va qurilmalar internet orqali bir-biri bilan bog'lanib, ma'lumot almashish imkonini beruvchi texnologiyalar majmui. IOT texnologiyalari kundalik hayotimizda, sanoatda, qishloq xo'jaligida va boshqa sohalarda inqilobiy o'zgarishlar kiritmoqda.

Internet qurilmalari (ing. Internet of Things (IoT)) uchta asosiy printsipga asoslanadi. Birinchidan, har doim mavjud bo'lgan aloqa infratuzilmasi, ikkinchidan, har bir ob'ektning global identifikatsiyasi va uchinchidan, har bir ob'ektning unga ulangan shaxsiy tarmoq yoki Internet orqali ma'lumotlarni yuborish va olish imkoniyati. Internet qurilmalarda har bir qurilmaning o'ziga xos identifikatori bor, ular birgalikda bir-biri bilan o'zaro ta'sirlasha oladigan, vaqtinchalik yoki doimiy tarmoqlarni yaratadigan qurilmalarning doimiyligini tashkil qiladi. Shunday qilib, qurilmalar ularni ko'chirish jarayonida, mavjud geolokatsiya joylashuvi to'g'risida ma'lumot almashish jarayonida ishtirok etishi mumkin, bu sizga logistika jarayonini to'liq avtomatlashtirishga imkon beradi va ichki intellekt yordamida qurilmalar o'z xususiyatlarini o'zgartirishi va atrof-muhitga moslashishi mumkin

Ishlash Prinsiplari.

Sensorlar: Ma'lumotlarni yig'ish uchun ishlatiladi, masalan, harorat, namlik, harakat va boshqa parametrlarni o'lchaydi.

Aktorlar: Sensorlardan olingan ma'lumotlar asosida harakat qilish imkonini beradi, masalan, motorlarni ishga tushirish yoki yorug'likni yoqish.

Ma'lumotlarni Uzatish. Yig'ilgan ma'lumotlar turli kommunikatsiya protokollari (Wi-Fi, Bluetooth, Zigbee va boshqalar) orqali uzatiladi. Bulutli platformalarda saqlanadi.

Ma'lumotlarni Tahlil Qilish. Yig'ilgan ma'lumotlar analitik vositalar orqali tahlil qilinadi. Bu tahlil asosida qarorlar qabul qilish uchun zarur bo'lgan ma'lumotlar olinadi.

Bulutli Texnologiyalar. IOT qurilmalari bilan bulut xizmatlari o'rtasidagi bog'lanish ma'lumotlarni saqlash, qayta ishlash va ulardan foydalanish imkonini beradi.

Aqlli Tizimlar. Olingan ma'lumotlar asosida avtomatik ish jarayonlarini yaratish va optimallashtirish imkonini beruvchi aqlli tizimlar yaratiladi.

Foydalanish Imkoniyatlari

Sanoat. IOT sanoatda avtomatlashtirishni kuchaytiradi, bu esa ishlab chiqarish jarayonlarini yanada samarali qiladi. Masalan, asbob-uskunalarini onlayn monitoring qilish va ta'mirlash vaqtini rejalashtirish.

Qishloq xo'jaligi. Aqlli qishloq xo'jaligi tizimlari yordamida yerlarni kuzatish, ekinlar va hayvonlarni boshqarish, suv ta'minoti va pestitsidlar boshqaruvi amalga oshiriladi.

Sog'liqni saqlash. Tibbiy qurilmalar orqali bemorlarning sog'liq holatini real vaqtda monitoring qilish va masofadan boshqarish imkoniyatlari yaratadi.

Shahar infratuzilmasi. Aqlli shaharlar uchun infratuzilma, transportni boshqarish, energiya sarfini optimallashtirish va xavfsizlik tizimlarini takomillashtirishda qo'llaniladi.

Uy avtomatlashtirish. IOT texnologiyalari uylarni aqlli qurilmalar bilan jihozlash imkonini beradi, bu esa energiya sarfini kamaytirish va yashash sifatini oshirishga yordam beradi.

Xulosa

IOT texnologiyalari, zamonaviy hayot tarzini yanada qulay va samarali qilishda muhim rol o'ynaydi. Ular yordamida biz har qanday joyda va vaqtda ma'lumotlarni kuzatish, boshqarish va analiz qilish imkoniyatiga ega bo'lamiz. IOTning rivojlanishi kelajakda yanada ko'plab yangi imkoniyatlar va innovatsiyalarni keltirib chiqaradi, bu esa iqtisodiy va ijtimoiy taraqqiyotga katta ta'sir ko'rsatadi. Biroq, xavfsizlik va maxfiylik masalalariga alohida e'tibor berish zarur, chunki IOT tizimlarining keng tarqalishi yangi xavf-xatarlarni keltirib chiqarishi mumkin.

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ВЫБОР ВЕБ-ФРЕЙМВОРКА ДЛЯ PYTHON

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Аннотация: *В этой статье мы рассмотрим, методы создание веб-сайта с использованием Django, его преимущества и предоставим примеры разработки.*

Ключевые слова: *веб-фреймворк, веб-проект, Python, Django, Flask, базовый шаблон, база данных.*

Введение. Django – это мощный веб-фреймворк, написанный на языке Python, который помогает разработчикам создавать веб-приложения быстро и эффективно. Он предоставляет набор инструментов и библиотек, упрощающих создание сложных веб-проектов. В этой статье мы рассмотрим, как создать приложение с использованием Django, его преимущества и предоставим примеры разработки.

Django предоставляет все необходимое для разработки современных приложений. У него развитая экосистема, которая продолжает улучшаться благодаря сильному сообществу. Кроме того, Django безопасен, универсален, масштабируем, высокопроизводителен и хорошо документирован.

Постановка задачи. Python - выбор номер один для искусственного интеллекта и машинного обучения. Разработка сайтов Django для новичков – это возможность получить хорошую профессию, которая будет востребованной в современном мире. Популярность Python, на котором основан Django, растет с каждым годом.

Цель статьи. Разработать веб сайт пользуясь основным объемом функций фреймворка Django, создает структуру проекта, шаблоны и модели.

Формировать у студентов понятие о современном состоянии рынка веб-приложений, области применения, тенденциях развития интернет-технологий.

Использовать Python для веб-разработки, выбрать подходящий фреймворк. Показать, как эффективно используется Django для создания веб-сайта как новичками, так и опытным специалистами.

Изложение основного материала.

В этой статье мы рассмотрим, как использовать Python для веб-разработки, особенно для создания веб-приложений и сайтов.

Выбор веб-фреймворка для Python

Для начала разработки веб-приложений на Python, нам потребуется выбрать подходящий веб-фреймворк.

Веб-фреймворк – это инструмент, который предоставляет набор компонентов и библиотек для упрощения разработки веб-приложений. Существует несколько популярных веб-фреймворков для Python:

Django – мощный и гибкий фреймворк с полным набором инструментов для разработки веб-приложений. Django подходит для разработки как простых, так и сложных проектов.

Flask – легковесный и простой в использовании фреймворк, идеально подходящий для создания небольших и средних веб-приложений.

FastAPI – современный фреймворк с акцентом на быстродействие и простоту использования, особенно хорош для создания API.

Выбор фреймворка зависит от наших предпочтений, опыта и требований к проекту.

Разработка веб-приложения с использованием Django

Для демонстрации процесса разработки веб-сайта на Python, рассмотрим пример создания простого веб-приложения с использованием Django.

Установить Django с помощью команды:

```
pip install django
```

Создать новый проект Django с помощью команды:

```
django-admin startproject my_project
```

Перейти в каталог с проектом и запустить веб-сервер для разработки:

```
cd my_project
```

```
python manage.py runserver
```

Открыть веб-браузер и перейти по адресу <http://127.0.0.1:8000/>. Мы увидим стартовую страницу Django.

Создать новое веб-приложение в проекте Django с помощью команды:

```
python manage.py startapp my_app
```

В файле `my_app/views.py` создать новую функцию для обработки HTTP-запроса:

```
from django.http import HttpResponse
```

```
def hello(request):
```

```
    return HttpResponse("Hello, World!")
```

В файле `my_project/urls.py` добавить новый маршрут для нашего веб-сайта:

```
from django.urls import path
```

```
from my_app.views import hello
```

```
urlpatterns = [
```

```
    path('hello/', hello, name='hello'),  
]
```

Запустить веб-сервер снова и перейти по адресу <http://127.0.0.1:8000/hello/>. На экране появится сообщение «Hello, World!».

В этом примере мы создали простейшее веб-приложение на Django, которое отвечает на запрос и возвращает приветственное сообщение. Django предлагает множество дополнительных возможностей, таких как работа с базами данных, формами, шаблонами и многое другое.

Для углубления в изучении веб-разработки на Python, усложним задачу:

Создание шаблонов каталога.

Теперь необходимо создать шаблоны для списка товаров и одного товара. Создайте следующую структуру файлов в каталоге приложения shop:

```
templates/  
  shop/  
    base.html  
    product/  
      list.html  
      detail.html
```

Необходимо определить базовый шаблон, а затем расширить его в `product list` и в шаблоне `detail`. Далее требуется отредактировать шаблон `shop/base.html` и добавить в него следующий код:

```
{% load static %}  
<!DOCTYPE html>  
<html>  
<head>  
  <meta charset="utf-8"/>  
  <title>{% block title %}My shop{% endblock %}</title>  
  <link href="{% static 'css/base.css' %}" rel="stylesheet">  
</head>  
<body>  
<div id="header">  
  <a href="/" class="logo">My shop</a>  
</div>  
<div id="subheader">  
  <div class="cart">  
    Your cart is empty.  
  </div>  
</div>  
<div id="content">
```

```
{% block content %}
{% endblock %}
</div>
</body>
</html>
```

Это базовый шаблон, который мы будем использовать для нашего магазина. Чтобы включить требуемые стили CSS и изображения, используемые шаблонами, необходимо скопировать статические файлы, которые входят в эту главу, расположенную в каталоге static/ приложения shop. Скопировать их в ту же папку проекта.

Изменить шаблон shop/Tovar/list.html и добавить в него следующий код:

```
{% extends "shop/base.html" %}
{% load static %}
{% block title %}
    {% if category %}{{ category.name }}{% else %} Tovars{% endif %}
{% endblock %}
{% block content %}
    <div id="sidebar">
        <h3>Categories</h3>
        <ul>
            <li {% if not category %}class="selected"{% endif %}>
                <a href="{% url "shop:tovars _list" %}">All</a>
            </li>
            {% for c in categories %}
                <li {% if category.slug == c.slug %}class="selected"{% endif
% }>
                    <a href="{% c.get_absolute_url %}">{{ c.name }}</a>
                </li>
            {% endfor %}
        </ul>
    </div>
    <div id="main" class="tovar -list">
        <h1>{% if category %}{{ category.name }}{% else %} Tovars{%
endif %}</h1>
        {% for tovar in tovar s %}
            <div class="item">
                <a href="{% tovar.get_absolute_url %}">
                    
```

```
</a>
<a href="{{ tovar.get_absolute_url }}">{{ tovar.name
}}</a><br>
    ${{ tovar.price }}
</div>
{% endfor %}
</div>
{% endblock %}
```

Это шаблон списка товаров. Он расширяет шаблон `shop/base.html` и использует переменную контекста категорий для отображения всех категорий на боковой панели и товаров для отображения товаров текущей страницы. Один и тот же шаблон используется для обоих типов: список всех доступных товаров и список товаров, отфильтрованных по категориям. Поскольку поле изображения модели товара может быть пустым, мы должны предоставить изображение по умолчанию для товаров, у которых нет изображения. Изображение находится в каталоге статических файлов с относительным путем `img/no_image.png`.

Поскольку мы используем `ImageField` для хранения изображений товаров, нам необходим сервер разработки для обслуживания загруженных файлов изображений. Отредактируем файл `settings.py` `myshop` и добавим следующие параметры:

```
MEDIA_URL = '/media/'
```

```
MEDIA_ROOT = os.path.join(BASE_DIR, 'media/')
```

`MEDIA_URL` является базовым URL-адресом, который обслуживает файлы мультимедиа, загруженные пользователями.

`MEDIA_ROOT` — это локальный путь, в котором находятся эти файлы, который мы строим динамически в зависимости от переменной `BASE_DIR`.

Чтобы Django обрабатывал загруженные мультимедийные файлы с помощью сервера разработки, отредактируем файл `urls.py` `myshop` следующим образом:

```
from django.conf import settings
from django.conf.urls.static import static
urlpatterns = [
    # ...
]
if settings.DEBUG:
    urlpatterns += static(settings.MEDIA_URL,
document_root=settings.MEDIA_ROOT)
```

В процессе разработки используются только статические файлы.

Добавим в магазин несколько продуктов с помощью сайта администрирования и откройте в браузере <http://127.0.0.1:8000/>. Появится страница списка товаров, которая заранее расположенного в базе данных.

Заключение. Фреймворк предоставляет готовые решения для часто встречающихся задач, таких как аутентификация, работа с базой данных и управление формами. Это позволяет разработчикам быстро разобраться в коде, применять готовые решения из библиотек и значительно ускорить процесс, экономить время. Поэтому создание сайтов на Django является актуальным и востребованным.

Django – отличный выбор для разработки веб-приложений благодаря своей мощной архитектуре, скорости разработки и безопасности. Следуя вышеуказанным шагам, мы создали свое веб-приложение на Django и воспользоваться всеми его преимуществами.

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ARTIFICIAL INTELLIGENCE IN UZBEKISTAN: DEVELOPMENT, CHALLENGES, AND OPPORTUNITIES

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Abstract: *This article explores the development of artificial intelligence (AI) in Uzbekistan, focusing on key initiatives, government policies, and the role of academia and industry. The country's strategic location and recent reforms have created an environment for fostering AI innovations. The article also highlights the challenges facing AI development, such as limited infrastructure and skill gaps, while discussing opportunities for growth in various sectors including education, healthcare, and public services.*

Keywords: *Artificial Intelligence, Uzbekistan, digital transformation, AI development, education, healthcare, government policy, technological innovation.*

Introduction. Artificial intelligence (AI) is increasingly becoming a pivotal force in global technological advancement. Countries worldwide are working to integrate AI technologies into various sectors of their economy, education, healthcare, and public services. Uzbekistan, a Central Asian country with a growing economy and strategic location, has recognized the importance of AI for its development. In recent years, Uzbekistan has made strides in adopting AI, driven by government policies aimed at digital transformation. This article delves into the state of AI in Uzbekistan, discussing the country's potential, challenges, and the future direction of AI integration.

Government Initiatives and Digital Transformation

Uzbekistan's government has been proactive in pushing forward a digital transformation agenda as part of its broader vision for economic modernization. In 2020, the country launched the "Digital Uzbekistan 2030" strategy, aimed at fostering innovation, creating a digital economy, and improving governance through technology. AI is one of the core components of this strategy. Several governmental institutions, such as the Ministry for Development of Information

Technologies and Communications (MITC), have been tasked with implementing AI technologies into various public services and sectors.

One notable initiative is the introduction of AI-driven services in government agencies to streamline operations, reduce bureaucratic inefficiencies, and improve citizen access to services. AI tools are being explored in areas such as public administration, transport management, and law enforcement. Additionally, the government is working to establish AI research centers and promote partnerships between the public and private sectors to accelerate AI adoption.

Key Initiative: Digital Economy

The development of a digital economy is a major focus in Uzbekistan's AI strategy. The country aims to transform sectors like agriculture, healthcare, and education by leveraging AI technologies. The integration of AI in agriculture, for instance, can optimize water usage, monitor crop health, and predict yields, which is crucial for Uzbekistan's economy, where agriculture plays a significant role.

AI in Education and Skill Development

A key element in the successful adoption of AI is the development of human capital. Uzbekistan has recognized the importance of nurturing a workforce equipped with AI skills. The country's education system is gradually integrating AI-focused curricula at various levels, from secondary education to university programs. In recent years, universities and technical institutes have introduced specialized AI programs in collaboration with foreign institutions. For instance, the partnership between Tashkent University of Information Technologies (TUIT) and international universities has resulted in the development of AI labs and research centers.

Moreover, several initiatives focus on improving the digital literacy of the general population. The government has established coding schools and tech hubs across the country to encourage young people to pursue careers in AI and other high-tech fields. These hubs provide training on AI technologies, data science, and machine learning.

Challenges in Education

Despite these efforts, challenges remain in AI education and skill development. Uzbekistan faces a shortage of qualified AI professionals and educators who can train the next generation of specialists. Additionally, there are gaps in infrastructure, such as limited access to high-speed internet and advanced computing facilities, which are essential for AI research and development.

AI Applications in Healthcare

Healthcare is one of the sectors where AI holds significant potential in Uzbekistan. AI technologies can revolutionize the way healthcare services are

delivered, improving diagnosis, treatment, and patient management. Uzbekistan has started to explore the use of AI in medical imaging, telemedicine, and health data management.

For instance, AI-based diagnostic tools are being tested to assist doctors in identifying diseases from medical scans such as X-rays and MRIs. These tools are particularly useful in rural areas where access to medical specialists is limited. Telemedicine platforms, powered by AI, are helping bridge the gap between urban and rural healthcare facilities by enabling remote consultations and diagnoses.

Telemedicine and Data Management

Telemedicine, supported by AI, is gaining traction in Uzbekistan, especially in the wake of the COVID-19 pandemic. AI tools help doctors monitor patient health remotely, reducing the burden on hospitals and improving healthcare accessibility in remote regions. Furthermore, AI-driven data management systems are being piloted to streamline patient records, reducing the administrative load on healthcare professionals.

Despite these advancements, the healthcare sector still faces challenges such as the need for better infrastructure, the digitization of healthcare data, and the training of healthcare professionals to work with AI tools.

Challenges and Opportunities for AI Development

The rapid development of AI in Uzbekistan presents both opportunities and challenges. While the government's efforts are commendable, there are several hurdles to overcome to fully realize the potential of AI.

Challenges

Infrastructure Limitations: One of the main challenges is the lack of infrastructure necessary for large-scale AI adoption. High-performance computing resources, reliable internet access, and data storage facilities are still limited, particularly in rural areas.

Data Availability: AI relies heavily on large datasets for training algorithms. In Uzbekistan, access to high-quality, clean data remains a challenge. Many sectors have not yet fully digitized their operations, making it difficult to collect and analyze data on a large scale.

Skill Gaps: As mentioned earlier, there is a shortage of skilled AI professionals in Uzbekistan. While educational reforms are underway, it will take time to build a workforce capable of advancing AI technologies.

Regulatory Framework: There is a need for a clear regulatory framework governing AI development and usage, particularly in terms of data privacy, ethical considerations, and liability in AI-driven decision-making.

Opportunities

Strategic Location and Partnerships: Uzbekistan's location at the crossroads of Europe and Asia offers it unique opportunities to collaborate with both regions on AI projects. The country has already established partnerships with international tech companies and research institutions, which can accelerate the pace of AI development.

Sectoral Innovations: AI has the potential to revolutionize key sectors in Uzbekistan, such as agriculture, healthcare, and public administration. These sectors are critical to the country's economy, and AI can bring efficiency and innovation in ways that were previously unimaginable.

Government Support: With continued government support through initiatives like "Digital Uzbekistan 2030" and the establishment of AI research centers, the country has a strong foundation to develop a vibrant AI ecosystem.

Conclusion

Uzbekistan's journey toward AI adoption is still in its early stages, but the groundwork has been laid through government initiatives, educational reforms, and pilot projects in various sectors. While challenges such as infrastructure gaps, data availability, and skill shortages need to be addressed, the country has significant opportunities to leverage AI for economic growth and technological advancement. With sustained effort and investment, Uzbekistan can position itself as a leader in AI innovation in Central Asia.

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AI AND HUMAN CREATIVITY: PARTNERS IN INNOVATION OR RIVALS?

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Abstract. *The interplay between artificial intelligence (AI) and human creativity has become one of the most exciting yet controversial subjects in today's technological age. AI is now capable of producing art, composing music, writing literature, and even solving complex problems that traditionally required human intuition and ingenuity. However, many wonder whether AI's capabilities pose a threat to human creativity or whether it can serve as a tool to enhance our creative potential. This article explores the dynamic relationship between AI and human creativity, examining how AI impacts the creative process, its limitations, and the ethical considerations that come with its increasing influence.*

Key words. *Artificial Intelligence (AI), Human Creativity, Machine Learning, Neural Networks, Pattern Recognition, Creative Process*

AI's journey from simple computational tools to complex machines capable of mimicking human thought processes has been remarkable. Early AI systems were confined to logic-based tasks like solving equations or playing chess. However, as machine learning and neural networks advanced, AI began venturing into domains traditionally associated with human creativity.

Today, AI-generated paintings, poetry, and music are no longer mere novelties but serious contenders in the creative industries. For example, OpenAI's GPT series, including the one you're interacting with now, can generate human-like text in a variety of styles. Similarly, AI platforms like DeepArt and Google's DeepDream create visual art, while tools like AIVA compose original music.

What makes this possible is AI's ability to recognize patterns, analyze vast amounts of data, and learn from it. These systems can be trained on datasets of existing creative works, allowing them to produce content that mimics the styles or techniques they have studied. While this is impressive, it raises the question: is AI truly creative, or is it just a sophisticated imitator?

To understand the relationship between AI and creativity, it's important to define creativity itself. Creativity is often seen as the ability to generate something novel and valuable—ideas, solutions, or works of art that break the mold. It involves imagination, intuition, and often a deep emotional connection to the work.

AI, however, does not possess consciousness, emotions, or a personal desire to create. It lacks subjective experience, the hallmark of human creativity. AI can generate new content, but it doesn't have a sense of purpose or motivation behind what it produces. In contrast, human creativity is often driven by experiences, emotions, and personal insight. While an AI can generate an artwork based on Van Gogh's style, it cannot understand why Van Gogh created his masterpieces in the first place, nor can it replicate the emotional depth that human artists bring to their work.

This distinction raises philosophical questions about what constitutes true creativity. Can we label AI-generated works as “creative” when they lack the emotional and experiential input that defines human expression? Or should we redefine creativity in light of these technological advancements, accepting that machines can be creative in their own way?

Despite these questions, many view AI not as a rival to human creativity but as a tool to enhance it. AI can serve as a powerful collaborator, helping artists, writers, and musicians push the boundaries of their work in new directions.

One of the most exciting uses of AI in creativity is its role as a muse. AI can generate ideas, provide inspiration, or suggest new ways of looking at a problem. For example, writers can use AI to overcome writer's block by generating prompts, or visual artists can use AI to experiment with styles they might not have considered.

In industries like advertising, AI can handle repetitive tasks, allowing humans to focus on the creative and conceptual aspects of a project. AI can quickly generate variations of an ad campaign, freeing up time for human teams to brainstorm and innovate.

AI-powered tools like Photoshop and Premiere Pro use AI to assist in tasks such as image editing, video rendering, and color grading, enhancing the speed and efficiency of the creative process. These tools allow artists to achieve results that would be difficult or time-consuming through manual methods.

AI also enables collaborative creativity, where human artists and AI systems work together to co-create. Musicians have begun using AI to compose melodies that they can then refine, and visual artists can tweak AI-generated artwork to add their own personal touches.

These examples suggest that rather than replacing human creativity, AI can act as a partner, helping humans tap into new creative possibilities. It can generate raw material that artists can refine or inspire new directions for creative projects. Ultimately, AI tools allow creators to focus more on conceptualizing and less on the mechanical aspects of their work.

While AI has demonstrated remarkable capabilities, it is not without limitations when it comes to creativity. These constraints highlight the unique aspects of human ingenuity that AI cannot replicate.

AI operates on data and algorithms, and although it can mimic human behavior or generate content, it cannot feel or have subjective experiences. Emotional nuance is a key aspect of human creativity, and AI lacks the capacity to create work that resonates on an emotional level in the same way human artists can.

AI excels at recognizing patterns and generating new content based on existing data, but it struggles with true originality. Much of AI's creative output is derivative, relying on training data to mimic existing styles. While AI can combine ideas in novel ways, it cannot create something wholly original without human input.

AI does not possess a real understanding of context, culture, or the social significance of creative works. Human creativity is deeply influenced by context, whether it be cultural movements, historical events, or personal life experiences. AI lacks this depth of understanding, which limits its ability to produce work that engages with the world in meaningful ways.

In creative fields like journalism, literature, or filmmaking, creators often navigate complex ethical or moral questions. AI lacks the ability to make such judgments or understand the consequences of its creations, raising concerns when AI is used in these domains. As AI becomes increasingly involved in creative processes, it raises a host of ethical questions. One of the primary concerns is the issue of authorship and ownership. If an AI-generated artwork becomes successful, who owns the intellectual property—the programmer, the AI, or the person who fine-tuned the AI's output? Legal frameworks are only beginning to address this issue, and there is much debate about whether AI should be granted the same rights as human creators.

Another ethical consideration is the potential for AI to perpetuate bias. AI systems are trained on existing datasets, and if those datasets reflect societal biases, the AI may produce biased or harmful content. For example, an AI trained on biased historical data might reinforce stereotypes in its creative output. This poses a risk not only in creative industries but in any field where AI-generated content is used.

Finally, the rise of AI in creative industries raises concerns about job displacement. If AI can write, compose, and design, what happens to human artists, writers, and musicians? While AI can enhance human creativity, there is a fear that it could also render certain jobs obsolete. However, many experts believe

that AI will not eliminate creative roles but instead transform them, shifting the focus from manual production to higher-level conceptual work.

The relationship between AI and human creativity is still in its infancy, but it is clear that AI will play an increasingly important role in creative industries. Rather than viewing AI as a threat, it can be seen as a tool that enhances human creativity, allowing us to push the boundaries of what is possible.

AI may never fully replicate the emotional depth and originality of human creativity, but it can serve as a valuable collaborator, providing new ideas, accelerating workflows, and expanding the range of creative expression. As long as ethical considerations are addressed, the future of AI and creativity lies in collaboration, with machines and humans working together to innovate and create in ways that were previously unimaginable.

In this new era, human creativity will continue to thrive—not despite AI, but because of it.

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MARKOV MODELI VA KIBERHUJUMLAR: EHTIMOLLIKLAR TAHLILI VA NATIJALAR

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Annotatsiya: Ushbu maqolada A.P.Rosenko tomonidan Markov modelining batafsil tahliliy o'rganishi taqdim etiladi. Biz ixtiyoriy t vaqtda tegishli Markov zanjirining ehtimolliklarini aniqlash uchun aniq analitik formulalar bilan natijalarni taqdim etamiz. Bunda, tizimning xavfsiz holati va kiberhujumlarning ta'siri o'rganiladi.

Kalit so'zlar: Markov modeli, Markov zanjiri, kiberhujum, ehtimollik vaqt, tebranishlar.

Kiberxavfsizlik, so'nggi yillarda jahon miqyosida katta ahamiyatga ega bo'lgan masalaga aylandi. Dunyoning turli mamlakatlarida kiber hujumlarning kundan-kunga ortib borishi, tashkilotlar va davlatlarning ma'lumotlarni himoya qilish strategiyalarini takomillashtirishga majbur qildi. Kiber hujumlar o'ta turli-tuman bo'lishi bilan birga, ularning samarali tahlili va aniqlanishi uchun yangi modellar va metodikalarni ishlab chiqish talab etilmoqda. Bunday modellardan biri, o'zining murakkabligi va aniqligi bilan, Markov modeli hisoblanadi.

Markov modellari, ularning xususiyatlari va tahlili, ko'plab sohalarda, jumladan, iqtisodiyot, aniq fanlarda faol ishlatiladi. Ushbu modellarning asosiy afzalligi shundaki, ular vaqti va tizimning holatini to'g'ri baholash imkonini beradi, bu esa kiber hujumlarning tahlili va oldini olishda muhim ahamiyatga ega. Bunday modellarning qo'llanilishi, xususan, sistema xavfsizligini tahlil qilish va kiber hujumlarning ehtimolini aniqlash uchun juda samarali vosita bo'lishi mumkin.

A.P.Rosenko tomonidan amalga oshirilgan Markov modelining to'liq va batamom tahlili, ushbu sohada yangi yondashuvlar yaratish va yangi tajriba natijalarini olishga xizmat qiladi. Ushbu tadqiqot, sistemalarning holatlarini aniqlash, ehtimollarni hisoblash va vaqtinchalik dinamikani tahlil qilish uchun aniq formulalarni taklif etmoqda.

Maqolada, biz olingan natijalarni taqdim etamiz, jumladan, ixtiyoriy t vaqtda tegishli Markov zanjirining ehtimolliklarini aniqlash uchun aniq analitik

formulalarni taklif etamiz. Bular nafaqat kiberxavfsizlik sohasida, balki boshqa bir necha ilmiy va amaliy sohalarda ham foydali bo'lishi mumkin.

Shu bilan birga, bu maqolada olingan natijalar asosida Markov modellari va kiber hujumlarning dinamikasi orasidagi aloqa va muloqotni o'rganish, shuningdek, ularning tushunchalari va imkoniyatlari to'g'risida kengroq tushuncha olish maqsadiga erishishga harakat qilinadi. Umuman olganda, bu tadqiqotning maqsadi Markov modelining amaldagi qo'llanilishini, kiber hujumlarni tahlil qilishdagi muhim rolini, shuningdek, u bilan bog'liq muammolarni chuqurroq ko'rib chiqishdan iboratdir.

Bir kiber xavfsizlik tizimida uchta asosiy holat mavjud: xavfsiz (0-holat), o'rta xavfli (1-holat) va yuqori xavfli (2-holat). Tizim dastlabki holatida xavfsiz (0-holat) bo'lib vaqt o'tishi bilan tahdidlar va xatolar tufayli holatlar o'zgarishi mumkin.

Tizimning har bir holati o'rtasida o'tish ehtimolliklari quyidagicha aniqlanadi:

- q_0 - xavfsiz holatdan o'rta xavfli holatga o'tish ehtimolligi.
- q_1 - o'rta xavfli holatdan yuqori xavfli holatga o'tish ehtimolligi.
- q_2 - yuqori xavfli holatdan xavfsiz holatga o'tish ehtimolligi.

1-masala: Agar dastlab tizim xavfsiz holatda (ya'ni $p(0) = (1, 0, 0)$) bo'lsa va holatlarning o'tish ehtimolliklari q_0 , q_1 va q_2 aniq bo'lsa, unda vaqt o'tishi bilan tizimning har bir holatga o'tish ehtimolliklari qanday bo'ladi?

Tizimning har bir holati uchun ehtimolliklar formulalari yordamida $t > 0$ vaqt momentida $p_0(t)$, $p_1(t)$ va $p_2(t)$ hisoblanadi.

Quyidagi teoremani ko'rib chiqaylik:

Teorema. Agar $t = 0$ vaqtning dastlabki momentida sistema xavfsiz holatda s_0 , ya'ni $p(0) = (1, 0, \dots, 0)$ bo'lsa, u holda vaqtning ixtiyoriy momentida $t > 0$ ehtimolliklari tizim holatlari quyidagi formulalar bo'yicha hisoblanadi:

$$p_0(t) = w^{-1} \left[\left(\frac{q_0 + w}{2} \right)^{t+1} - \left(\frac{q_0 - w}{2} \right)^{t+1} \right]; \quad (1)$$

$$p_i(t) = p_0(t-1) q_i, \quad i = 1, 2, \dots, n; \quad (2)$$

$$p_{n+1}(t) = 1 - p_0(t) - p_0(t-1) \sum_{i=1}^n q_i, \quad (3)$$

bu yerda w musbat parametr sifatida aniqlanadi.

$$w^2 = q_0^2 + 4 \sum_{i=1}^n r_i q_i \quad (4)$$

Isbot. Teoremaning to'g'riligini t musbat butun parametr bo'yicha induksiya yo'li bilan isbotlaymiz.

Baza holati ($t = 1$): Ushbu holda (1) - (3) formulalar to'g'ridan-to'g'ri tekshiriladi. Darhaqiqat, $t = 1$ da:

$$p_0(1) = w^{-1} \left[\left(\frac{q_0 + w}{2} \right)^2 - \left(\frac{q_0 - w}{2} \right)^2 \right] = w^{-1} \left[\frac{4q_0 w}{4} \right] = q_0 ;$$

$$p_i(1) = p_0(0)q_i = q_i, \quad i = 1, 2, \dots, n;$$

$$p_{n+1}(1) = 1 - p_0(1) - p_0(0) \sum_{i=1}^n q_i = 1 - q_0 - \sum_{i=1}^n q_i = 0$$

Bunda $q_0 = 1 - \sum_i q_i$ ekanligini hisobga oldik. Biroq, biz bir xil ehtimollik qiymatlarini olamiz:

$$p_0(1) = q_0, \quad p_i(1) = q_i, \quad i = 1, 2, \dots, n, \quad p_{n+1}(1) = 0$$

Faraz qilaylik (1) - (3) formulalar ma'lum bir moment uchun to'g'ri bo'lsa $t > 0$. Ushbu holda, $p^{(t+1)}$ vektorining komponentlari uchun (1) o'tish ehtimoli matritsasidan foydalanib, quyidagi ifodalarni olamiz:

$$p_0(t+1) = p_0(t)q_0 + \sum_{i=1}^n p_i(t)r_i; \quad (5)$$

$$p_i(t+1) = p_0(t)q_i, \quad i = 1, \dots, n; \quad (6)$$

$$p_{n+1}(t+1) = \sum_{i=1}^n p_i(t)(1-r_i) + p_{n+1}(t) \quad (7)$$

(1), (2) va (4) formulalarni qo'llash orqali, (5) tenglikga aylantirilishi mumkin:

$$p_0(t+1) = q_0 w^{-1} \left[\left(\frac{q_0 + w}{2} \right)^{t+1} - \left(\frac{q_0 - w}{2} \right)^{t+1} \right] + w^{-1} \left[\left(\frac{q_0 + w}{2} \right)^t - \left(\frac{q_0 - w}{2} \right)^t \right] \sum_{i=1}^n q_i r_i =$$

$$= w^{-1} \left[\left(\frac{q_0 + w}{2} \right)^{t+2} - \left(\frac{q_0 - w}{2} \right)^{t+2} \right].$$

Ikkinchisi (1) formulasiga to'g'ri keladi, unda $t \rightarrow t + 1$ o'rnini bosadi. Bundan tashqari, (6) formulalar (2) formulalari bilan mos keladi, bunda $t + 1$ formulasi (7) olinadi.

U holda (5) quyidagi

$$p_{n+1}(t+1) = \sum_{i=1}^n p_i(t) - p_0(t+1) + p_0(t) \left(1 - \sum_{i=1}^n q_i \right) + p_{n+1}(t)$$

shaklni oladi.

(1) - (3) formulalarini, shuningdek $\sum_{i=1}^n p_i(t) + p_0(t) + p_{n+1}(t) = 1$ identifikatsiyasini hisobga olgan holda

$$p_{n+1}(t+1) = 1 - p_0(t+1) - p_0(t) \sum_{i=1}^n q_i$$

ga ega bo'lamiz. Demak, agar (2) - (4) tengliklar ba'zi $t > 0$ uchun to'g'ri bo'lsa, keyingi $t + 1$ vaqt uchun ham to'g'ri bo'lishini isbotladik.

Bundan kelib chiqadiki, (1) - (3) formulalar uchun qanoatlanadi. Induksiya orqali har qanday t uchun teorema isbotlandi.

Keling, bitta alohida hususiy holatni ko'rib chiqaylik. Tizimda himoyaning to'liq yo'qligi barcha parametrlarning r_i nolga teng ekanligini anglatadi: $r_i = 0, i = 1, \dots, n$. Bunday holda, (4) formulaga muvofiq, parametr w ga teng bo'ladi tahdidlarning birortasini amalga oshirmaslik ehtimoli, ya'ni $w = q_0$. Keyin tizim holatlarining ehtimolliklari uchun quyidagi

$$p_0(t) = q_0^t, \quad p_i(t) = q_0^{t-1} q_i, \quad i = 1, 2, \dots, n; \quad p_{n+1}(t) = 1 - q_0^{t-1}$$

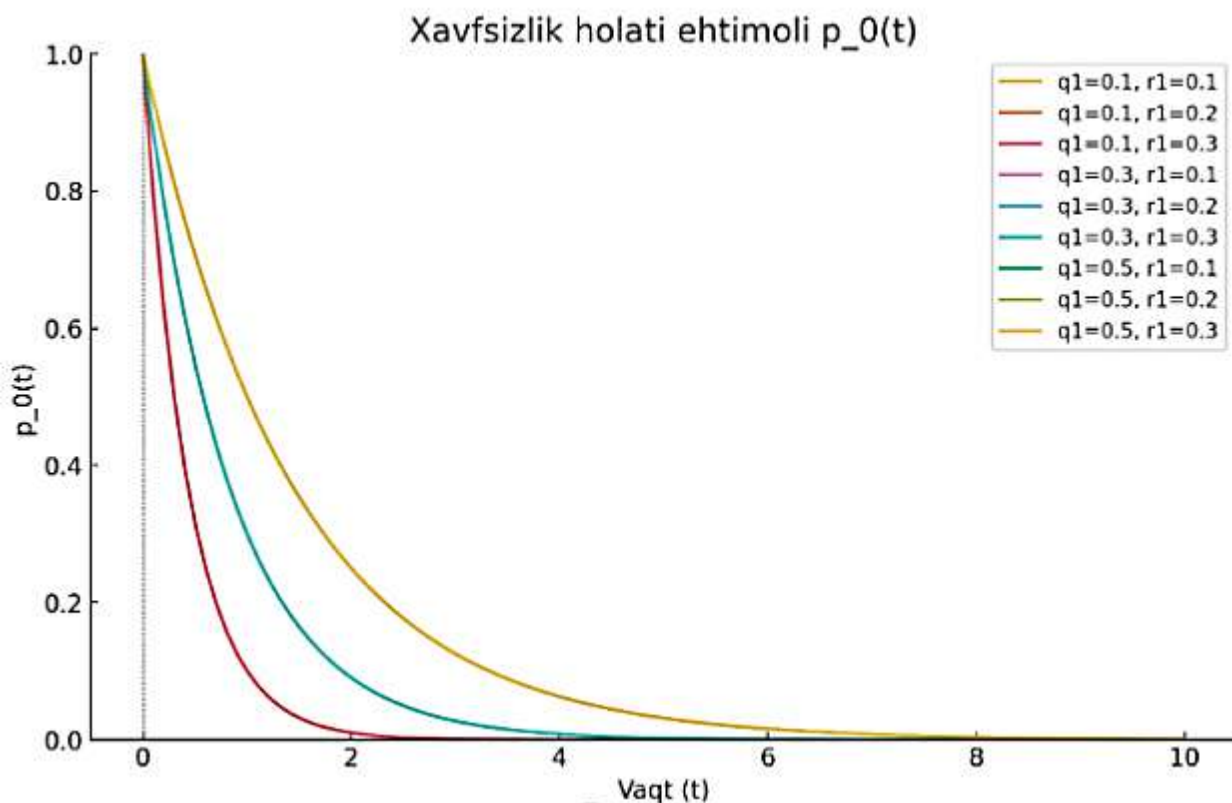
ifodalarni olamiz. Ushbu tengliklardan foydalanib, $t \rightarrow \infty$ da tizim holatlarining ehtimolliklari uchun chegara munosabatlarini olishimiz mumkin:

$$\lim_{t \rightarrow \infty} p_0(t) = \dots = \lim_{t \rightarrow \infty} p_n(t) = 0, \quad \lim_{t \rightarrow \infty} p_{n+1}(t) = 1$$

Endi (1) formula bilan aniqlangan $p_0(t)$ funksiyani batafsil ko'rib chiqamiz. O'z ma'nosida ushbu funktsiyaning t vaqtidagi qiymati ma'lum bir vaqtda tizimni xavfsizlik holatida aniqlash ehtimolidir. Yuqoridagilardan kelib chiqadiki, t ortishi bilan bu ehtimollik kamayadi, ammo umumiy holatda, monoton emas.

Buni (1) formula yordamida ko'rsatish mumkin: $p_0(t)$ qiymati qavs ichidagi ikkita hadning ayirmasiga teng, bunda birinchi had t ning monoton kamayuvchi funksiyasi, ikkinchi hadi esa tebranish xususiyatiga ega.

Ushbu funktsiyaning pasayish tezligi, shuningdek, uning tebranishlarining jiddiyligi to'g'ridan-to'g'ri q_i va . . tizim parametrlarining o'ziga xos qiymatlariga bog'liq bo'ladi. Jadval sifatida biz rasmda bitta kiberhujum ($n=1$) holatida q_1 va r_1 tizim parametrlarining ikki xil qiymatlari to'plami uchun $p_0(t)$ funksiyasining grafiklarini taqdim etamiz.



Rasmdan ko'rinib turibdiki, q_1 va r_1 qiymatlari oshishi bilan funktsiyaning pasayish tezligi ortadi. Bu esa, oddiy qilib aytganda, tizimni ta'sir etish xavfi ortganini anglatadi. Bunday holda, tizim ehtimoli 1 ga yaqin bo'lib qoladi.

Demak, biz olingan natijalar orqali kiberhujum natijalari bo'yicha ehtimolliklarni nazorat qilish mumkinligini ko'rsatdik. Kiberhujumlar bo'yicha tizimning harakat qilish tahlili bizga bir qator mumkin bo'lgan holatlar va ularning natijalarini ko'rib chiqish imkonini beradi. Ushbu usul kiberhujumlar va ularning oldini olish bo'yicha tadqiqotlar olib borishda juda foydali.

Shunday qilib, xavfsizlik buzilishi holatidan tashqari har qanday holatda tizimni aniqlash ehtimoli katta vaqtlar davomida deyarli nolga teng bo'ladi. Ko'rsatish mumkinki, chegara munosabatlari (8) tizimni himoya qilishning barcha

parametrlarida r_i nolga teng bo'lganda umumiy holat uchun ham to'g'ri bo'ladi. Bu haqiqatni isbotlash uchun tenglikning (1) o'ng tomonidagi qavslar ichida keltirilgan $(q_0 \pm w)/2$ ifodalarining mutlaq qiymati birlikdan kichik ekanligini hisobga olish kifoya. Oxirgi xulosa shuni anglatadiki, $(q_0 \pm w)/2$ kattaliklari $f(x) = x^2 - q_0x - \sum_{i=1}^n q_i r_i = 0$ kvadrat tenglamaning haqiqiy ildizlari ekanligi, bu esa $f(\pm 1) > 0$ tengsizliklari tufayli $f(0) < 0$ va har doim $(-1, 1)$ intervaliga tegishli ekanligini ko'rsatadi.

Yuqoridagilardan kelib chiqadiki, yetarlicha uzoq vaqt o'tgach, tizim katta ehtimollik bilan S_{n+1} xavfsizlik xatosi holatida topiladi; shu bilan birga, tizimni boshqa holatda topish ehtimoli amalda nolga teng bo'ladi.

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ARTIFICIAL INTELLIGENCE

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Abstract. *This article examines the use of Artificial Intelligence (AI) in optimizing traffic management for both urban and telecommunication networks. It highlights AI's ability to analyze real-time data, predict congestion, and improve service efficiency. Key AI applications, such as traffic flow prediction and network resource allocation, are discussed, alongside the potential future impact of AI in managing next-generation networks.*

Keywords. *Artificial Intelligence (AI) in Traffic Systems, Traffic Optimization, Telecommunication Networks, Real-time Data Processing, Machine Learning in Traffic Management, Predictive Analytics, Network Congestion Solutions, Traffic Flow Prediction, AI-based Traffic Algorithms, Quality of Service (QoS) in Networks.*

Introduction

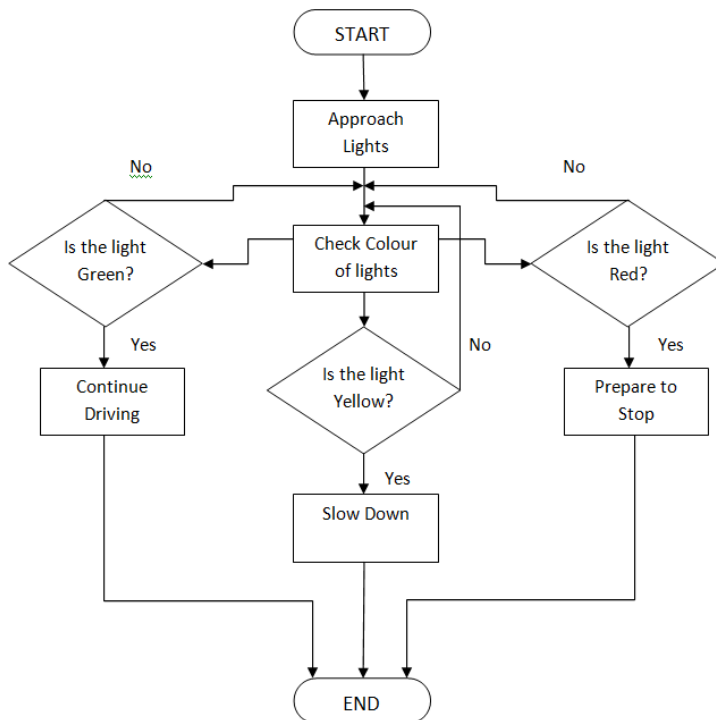
Artificial Intelligence (AI) has transitioned from a futuristic concept to a critical tool used in solving complex challenges across numerous industries. One area where AI's impact is particularly transformative is in traffic management—both physical and digital. Whether it's optimizing the flow of vehicles in congested cities or managing data traffic in telecommunication networks, AI offers data-driven, real-time solutions that can significantly enhance decision-making and reduce human errors. By automating tasks that were once manual, AI ensures greater efficiency, scalability, and overall system performance.

AI in Traffic Management Systems.

Traditionally, traffic management has relied heavily on human operators, who make decisions based on intuition, experience, and available data. However, this approach often leads to inefficiencies, including delayed response times, traffic congestion, and inconsistent service quality. As urban environments and telecommunications networks grow in complexity, these problems become even more pronounced.



AI introduces a new way of managing traffic by leveraging machine learning algorithms, real-time data processing, and predictive analytics. By analyzing traffic patterns, AI systems can predict future congestion points, optimize resource allocation, and dynamically adjust traffic flow. This results in more effective and efficient management of both physical and network traffic.



Applications of AI in Telecommunication Traffic.

In the world of telecommunications, networks operate like a grid of highways, with data packets representing vehicles, and network bandwidth acting as the road space. Effective management of this "traffic" is crucial to ensure uninterrupted and high-quality service. AI is now being used to handle the following critical tasks in telecommunications traffic:

AI systems can gather and process vast amounts of data in real-time to identify congestion points, predict traffic surges, and adjust network resources accordingly. These AI-driven insights ensure that network resources are utilized optimally, reducing the likelihood of bottlenecks or system failures. In cases where network overloads occur, AI can automatically restrict non-essential data flows, prioritizing critical data like emergency communications.

Through AI's ability to reroute data across the least congested pathways, it also improves the overall flow of traffic. Simulated traffic generation, enabled by AI, allows network operators to test the resilience of their systems under different load conditions, ensuring the network is always prepared for peak usage.

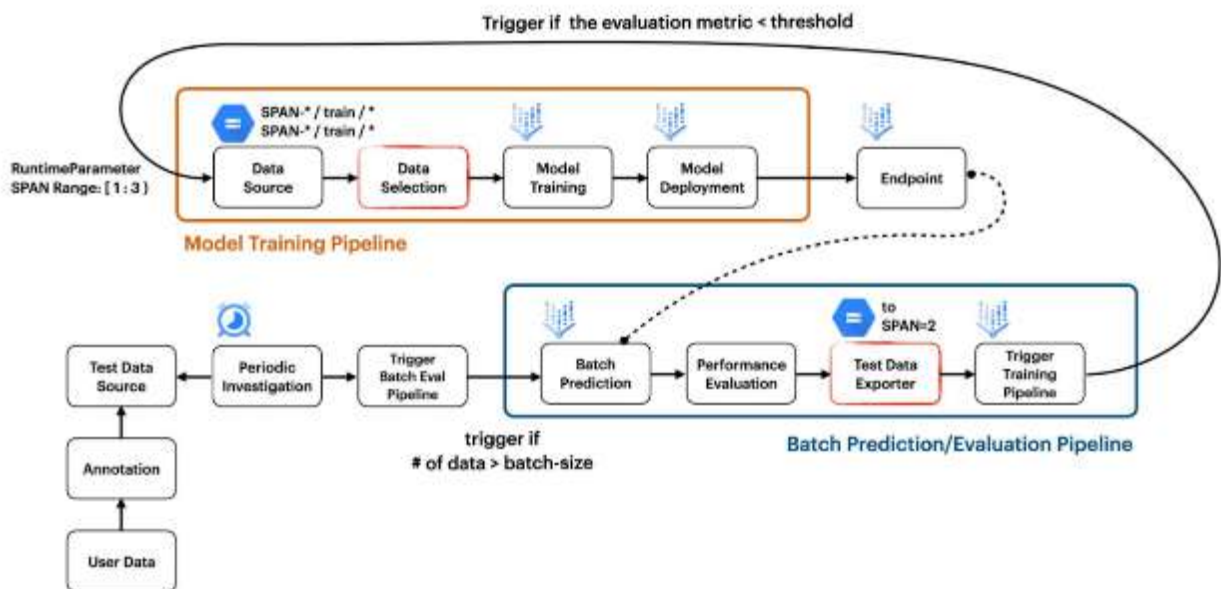
Core Tasks and Challenges in AI-Driven Traffic Management.

AI-driven traffic management involves several core tasks, each designed to address specific challenges in optimizing traffic flow.

The classification of data is crucial in managing traffic, as AI must distinguish between different types of data—such as video streams, file downloads, or voice calls—in order to allocate resources more effectively.

AI systems also forecast future traffic demands using regression models, allowing networks to anticipate spikes in usage and make preemptive adjustments. Through clustering, AI identifies similar patterns in traffic flow, helping to group data and improve the segmentation of network loads.

One of the biggest challenges is setting traffic limits. When traffic surpasses a certain capacity threshold, AI steps in to restrict or re-route traffic, preventing network congestion or failure. This requires highly sophisticated algorithms that can respond in real-time, without disrupting service quality.



Advantages of AI in Traffic Management

AI offers numerous advantages over traditional traffic management methods, especially in telecommunication networks. The efficiency with which AI can process large-scale data far surpasses human capabilities, resulting in faster, more accurate decisions.

In terms of scalability, AI systems are designed to handle ever-growing networks, making them suitable for large-scale operations where manual oversight would be too slow or labor-intensive. Moreover, the accuracy provided by AI systems—free from human errors such as fatigue or oversight—ensures better management of traffic, with reduced downtime and improved service quality.

Automating many of the decision-making processes also reduces operational costs, as fewer human operators are required. Furthermore, AI's ability to predict potential problems before they arise, through predictive maintenance, ensures that network failures and congestion issues are avoided.

Conclusion

AI is reshaping traffic management in profound ways, offering intelligent, real-time solutions for both physical and telecommunications networks. Its ability to analyze massive datasets, forecast trends, and automate decision-making processes ensures a future where traffic congestion—whether on roads or in data networks—will be minimized. As AI continues to evolve, we can expect it to play an increasingly significant role in shaping how traffic is managed, driving greater efficiency, scalability, and accuracy in the years to come.

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BULUTLI MUHITDA AUTENTIFIKATSIYA VA KIRISHNI BOSHQARISH USULLARI

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Anotatsiya: Ushbu maqolada tezis yozish uchun qanday qoidalarni bilish kerakligi ko'rib o'tilgan. Tezislarga qo'yiladigan talablar keltirib o'tilgan. Tezisini qanday shakllantirish kerakligi haqida bayon etilgan.

Kalit so'zlar: autentifikatsiya, parol, Biometric Authentication, Two-Factor Authentication, RBAC, ABAC, MAC, DAC.

Bulutli muhitda autentifikatsiya va kirishni boshqarish usullarining ahamiyatini tahlil qilishda. Bulutli hisoblash texnologiyalari o'sib borayotgan sari, ma'lumotlarning xavfsizligi va maxfiyligini ta'minlash muhim ahamiyat kasb etadi. Bulutli muhitda autentifikatsiya jarayoni foydalanuvchilarni aniqlash va ularning kirish huquqlarini boshqarish uchun muhim rol o'ynaydi. Bulutli xizmatlar uchun keng qo'llaniladigan autentifikatsiya usullari, shu jumladan ko'p omilli autentifikatsiya (MFA), biometrik autentifikatsiya, yagona kirish (SSO) va token asosidagi autentifikatsiya usullari ko'rib chiqiladi. Har bir usulning afzalliklari va kamchiliklari batafsil tahlil qilinadi va ularning samaradorligi real foydalanish sharoitlarida baholanadi. Tadqiqot natijalari, bulutli muhitda xavfsizlikni ta'minlashda samarali autentifikatsiya va kirishni boshqarish usullarining qo'llanilishi bo'yicha tavsiyalar beradi. IT mutaxassislari, xavfsizlik bo'yicha mutaxassislar va bulutli xizmatlardan foydalanuvchi tashkilotlar uchun qimmatli manba bo'lib xizmat qiladi. Bulutli hisoblashda autentifikatsiya va kirishni boshqarish ma'lumotlar va resurslarni himoya qilish uchun juda muhimdir. Autentifikatsiya foydalanuvchini tizimga kirishda tasdiqlaydi, kirishni boshqarish esa tasdiqlangan foydalanuvchilarga ruxsat berilgan resurslarga kirishni ta'minlaydi.

Autentifikatsiya usullari: Bulutli muhitda autentifikatsiya qilishning bir nechta usullari mavjud bo'lib, har bir usulning o'ziga xos xavfsizlik darajasi va qulaylik darajasi mavjud:

Parol asosida autentifikatsiya (Password-based Authentication):

Tavsifi: Foydalanuvchi o'z identifikatori (username) va paroli yordamida tizimga kiradi.

Afzalliklari: Oddiy va keng tarqalgan usul.

Kamchiliklari: Parollar oson buzilishi yoki o'g'irlanishi mumkin. Kuchli parollar va ikki faktorli autentifikatsiya bilan birga qo'llanilishi tavsiya etiladi.

Ikki faktorli autentifikatsiya (Two-Factor Authentication, 2FA):

Tavsifi: Foydalanuvchi ikki turdagi ma'lumot yordamida autentifikatsiyadan o'tadi, odatda parol va bir martalik kod.

Afzalliklari: Xavfsizlikni sezilarli darajada oshiradi.

Kamchiliklari: Qo'shimcha qadamlar kerak bo'lishi tufayli foydalanuvchilar uchun noqulay bo'lishi mumkin.

Biometrik autentifikatsiya (Biometric Authentication): Tavsifi: Foydalanuvchi biometrik ma'lumotlar (barmoq izi, yuz tanish, ko'zning qizil pardasi) yordamida tizimga kiradi.

Afzalliklari: Yuqori xavfsizlik va qulaylik.

Kamchiliklari: Maxsus uskunalar talab qiladi va ba'zi hollarda noaniqliklar bo'lishi mumkin.

Token asosida autentifikatsiya (Token-based Authentication): Tavsifi: Foydalanuvchi token (masalan, USB-token yoki raqamli sertifikat) yordamida tizimga kiradi.

Afzalliklari: Yuqori xavfsizlik darajasi, parollardan ko'ra xavfsizroq.

Kamchiliklari: Tokenlarni yo'qotish yoki o'g'irlash xavfi mavjud.

Kirishni boshqarish usullari: Bugungi kunda ma'lumotlarning hajmi juda tez o'sib bormoqda, shuningdek bunda bulutli hisoblash texnologiyalari keng tarqalgan sari, ma'lumotlarning xavfsizligi va kirish huquqlarini to'g'ri boshqarish muhim ahamiyat kasb etmoqda. Har bir usulning afzalliklari, kamchiliklari va real hayotdagi qo'llanilishi tahlil qilinadi. Tadqiqotda shuningdek, ushbu usullarni amalga oshirishdagi muammolar va ularni yengib o'tish strategiyalari ham yoritiladi. Maqola natijalari, bulutli hisoblashda samarali kirishni boshqarish usullarini tanlash va amalga oshirish bo'yicha tavsiyalar beradi. Bu maqola IT mutaxassislari, xavfsizlik bo'yicha mutaxassislar va bulutli hisoblash xizmatlaridan foydalanuvchi tashkilotlar uchun qimmatli manba bo'lib xizmat qiladi. Bulutli muhitda autentifikatsiyadan tashqari kirishni boshqarish ham muhimdir.

Kirishni boshqarish usullari foydalanuvchilarning tizim resurslariga ruxsatini cheklash va boshqarish imkonini bular:

RBAC (Role-Based Access Control):

Tavsifi: Foydalanuvchilarga ularning rollariga asoslangan ruxsatlar beriladi. Rollar ma'lum vazifalar va majburiyatlarga mos keladi.

Afzalliklari: Katta tashkilotlarda samarali, boshqarish oson.

Kamchiliklari: Rollarni aniqlash va boshqarish qiyin bo'lishi mumkin.

ABAC (Attribute-Based Access Control):

Tavsifi: Foydalanuvchilar va resurslarning atributlariga asoslangan kirish nazorati amalga oshiriladi.

Afzalliklari: Moslashuvchan va dinamik kirish nazorati.

Kamchiliklari: Murakkab sozlamalar va boshqarish talab qiladi.

MAC (Mandatory Access Control):

Tavsifi: Kirish nazorati markazlashtirilgan siyosat asosida amalga oshiriladi, foydalanuvchilar ruxsatlarini tizim administratorlari belgilaydi.

Afzalliklari: Yuqori xavfsizlik, davlat va harbiy tashkilotlarda keng qo'llaniladi.

Kamchiliklari: Moslashuvchanlik kam, boshqarish qiyin.

DAC (Discretionary Access Control):

Tavsifi: Foydalanuvchilarga o'z resurslariga kirishni boshqarish imkoniyati beriladi.

Afzalliklari: Moslashuvchan va oddiy.

Kamchiliklari: Xavfsizlik darajasi pastroq, ba'zi hollarda noaniqliklar bo'lishi mumkin.

Qiyosiy tahlil natijalari

Bulutli hisoblashlar so'nggi yillarda axborot texnologiyalari sohasida katta e'tibor qozongan texnologiyalardan biridir. Bu texnologiya foydalanuvchilarga Internet orqali kompyuter resurslari va xizmatlarini arzon narxlarda, elastik va kengaytiriladigan shaklda taqdim etadi. Tahlil jarayonida bulutli hisoblashning IaaS (Infrastructure as a Service), PaaS (Platform as a Service) va SaaS (Software as a Service) kabi xizmat modellari chuqur o'rganiladi. Har bir xizmat modelining afzalliklari va kamchiliklari tahlil qilinib, ularning turli foydalanish hollari bo'yicha qiyosiy baho beriladi. Shuningdek, bulutli hisoblash texnologiyasining xavfsizlik va maxfiylik masalalari ham ko'rib chiqiladi. Bu masalalar doirasida ma'lumotlarning himoyalanihi, foydalanuvchi autentifikatsiyasi, va ma'lumotlarning maxfiyligi bilan bog'liq xavf-xatarlar tahlil qilinadi. Ushbu tadqiqot natijalari bulutli hisoblash texnologiyalarini samarali qo'llash bo'yicha tavsiyalar ishlab chiqishga yo'naltirilgan bo'lib, turli sohalarda axborot texnologiyalari infratuzilmasini takomillashtirishga xizmat qiladi. Desertatsiya natijalari asosida korxonalar va tashkilotlarga bulutli hisoblash xizmatlarini tanlash va joriy etishda yordam beruvchi amaliy ko'rsatmalar beriladi. Autentifikatsiya va kirishni boshqarish usullarining qiyosiy tahlili shuni ko'rsatadiki, turli usullar har xil xavfsizlik darajalari va qulaylik darajasiga ega. Bulutli hisoblash muhitida quyidagi tavsiyalar berilishi mumkin:

Autentifikatsiya uchun: Ikki faktorli autentifikatsiya va biometrik autentifikatsiya yuqori xavfsizlikni ta'minlaydi.

Kirishni boshqarish uchun: Rollarga asoslangan kirishni boshqarish (RBAC) katta tashkilotlarda samarali, lekin kichik tashkilotlar uchun atributlarga asoslangan kirishni boshqarish (ABAC) ko'proq mos kelishi mumkin.

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МЕТОДОЛОГИЧЕСКИЕ ОСНОВЫ МОНИТОРИНГА ВУЗОВ

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Аннотация. Проанализированы состояние и современные подходы к проведению мониторинга в высшем образовании. Приведены аналитические

материалы обзорных исследований по методологии мониторинга образовательной деятельности вузов. Обоснованы методы и методологии исследования, актуальность и цель разработки методики проведения мониторинга вузов. Показаны особенности и преимущества форматного представления разработанной методики. Разработан и представлен алгоритм формирования системы мониторинга образования вузов. Сформулированы основные понятия системы мониторинга вузов. Представлен общий формат и структура методики разработки мониторинга образовательного процесса вузов. Проанализированы основные методические положения по проведению мониторинга образовательного процесса вуза.

Ключевые слова: *методология, методика, мониторинг образовательной деятельности, эффективность, этапы, источники информации, анализ, оценка, формат методики.*

Введение. Разработка методологии системы мониторинга эффективности образовательного процесса вузов обуславливает необходимость формирования совокупности приемов изучения, анализа, регистрации и измерения данных, сравнения параметров состояния и оценки образовательной деятельности по обеспечению эффективности результатов образовательного процесса вуза, что является актуальной задачей современности [8, с.168].

Система мониторинга образования в качестве обобщающего инструментария оценки потенциала деятельности вуза будет способствовать осуществлению работ по комплексному анализу и объективной оценке результатов деятельности вуза и его структурных подразделений, создать базу данных уровня реализации бизнес-процессов образования [2, с.72; 3. с.295].

Нормы законодательства в Кыргызской Республике в области мониторинга образования [4, ст.13; 5] предусматривает проведение ежегодного мониторинга по выполнению стратегических и текущих планов, целей образования, достигнутых результатов и внесение соответствующих корректив, которые отнесены к критериям оценки качества образования образовательных организаций.

Постановка задачи исследования. Система мониторинга вузов предполагает рассмотрения ее как инструментарий изучения, исследования, анализа и оценки эффективности результатов деятельности вузов в сравнении со стандартным (нормативным) показателем для реализаций которой необходимо разработать методологию формирования элементов предметной области с анализом их характеристик, а также описанием актуализации бизнес-процессов мониторинга.

Методы исследования. В рамках исследования применяются традиционные подходы сравнительного и системного анализа, методы статистического исследования, квалиметрии, моделирования, экспертных оценок и теории множеств.

Цель исследования. Общей целью рассматриваемой методологии является создание и реализация системы мониторинга, направленной на обеспечение получения объективных и представительных информативных данных, а также эффективности результатов деятельности вузов, что в конечном итоге скажется на увеличении вклада системы высшего образования в экономическое развитие и рост общественного благосостояния в стране.

Результаты исследования. На основе обзорных исследований, изучения практических разработок и методологии, посвященных системе мониторинга вузов, следует отметить, что по рассматриваемой проблеме был опубликован ряд работ.

В целях разработки модели системы мониторинга образовательных процессов необходимо изучить и обобщить существующие методики, технологии и модели проведения мониторинга в образовательной системе с использованием информационных технологий. При этом необходимо четко определить сущности понятий «методика» и «технология». Методикой понимается установленный способ осуществления некоторой деятельности и некое готовое «решение» алгоритм, процедура для проведения бизнес-процессов мониторинга в образовательной системе.

В свете представленных характеристик и содержания мониторинга образования, представляющих собой как бизнес - процесс оценочных процедур деятельности вузов обуславливается задача систематизации и определения последовательности действий и направлений информационного сопровождения, а также описания условий реализаций требуемых процедур. Данные вопросы могут быть рассмотрены и найти свое решение разработкой алгоритма формирования системы мониторинга образования, который представлен на рис.1.

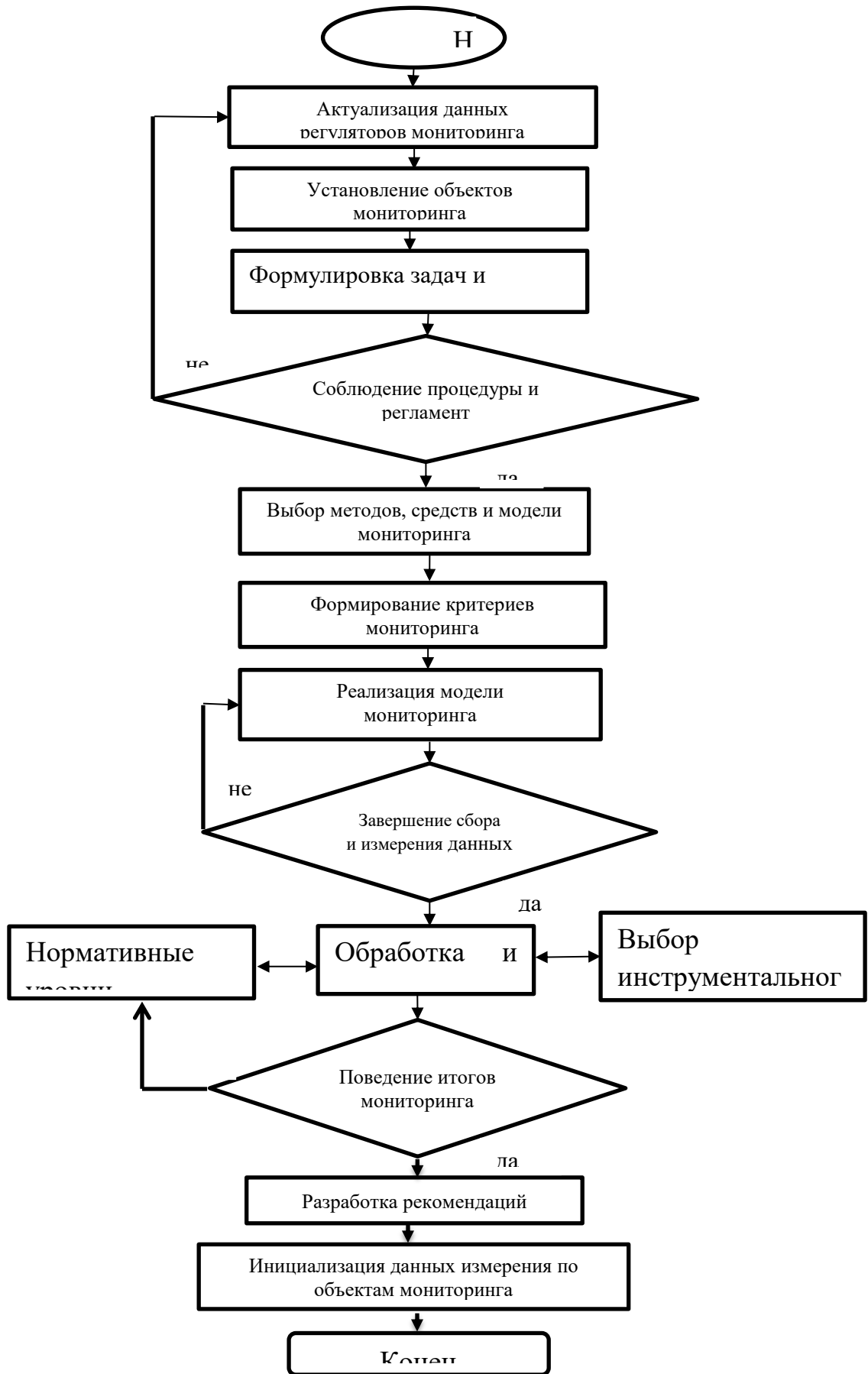


Рисунок 1. Алгоритм формирования системы мониторинга образования.

Источник: составлено авторами

Разработанная методика опирается на основные положения системного подхода с ориентиром на обеспечение целостности содержания предметной области исследования. В этих целях в исследовании выделяется и формулируется совокупность составляющих элементов и признаков системы мониторинга, а также характеристики по этапам методики [1, с.83].

Поставленная цель данной методологии будет решена реализацией следующих задач:

- формирование соответствующей научно-методической информационной базы данных и требований;
- систематизация и группировка данных по бизнес-процессам и процедурам мониторинга;
- формулировка цели и задач мониторинга;
- выбор методов и средств мониторинга;
- установление этапов мониторинга;
- организация анализа данных и формирование системы критериев и показателей;
- осуществление измерения данных;
- проведение расчетных операций;
- подведение итогов мониторинга;
- прогнозные и рекомендательные решения.

Рекомендуется нами описание методики проведения мониторинга с раскрытием характеристик ее структурных составляющих и последовательности этапов рекомендуется привести в виде следующего формата (табл.1).

Таблица 1. Формат методики мониторинга образовательного процесса вуза

Основные элементы и этапы мониторинга	Характеристика элемента методики
1 Структурные элементы	
1.1. Методологическая часть	Служит для обоснования предпосылки, требований, современных трендов и постановки задач проведения мониторинга
1.2. Методическая часть	Приводится описание и определение порядка работы в объектах мониторинга, связанные с процедурами оценивания
1.3. Актуализация процедур и подведение итогов	Формируются регламенты проведения мониторинга, требования, к подведению итогов и

		разработке рекомендации
2	Элементы по этапам методики	
2.1.	Цель мониторинга	Приводится постановка цели мониторинга
2.2.	Задачи мониторинга	Для реализации цели формулируются соответствующие задачи
2.3.	Параметры и источники информации	Указывается наименование и характеристика источников информации
2.4.	Объект, субъект и предмет мониторинга	Приводится характеристика и описание элементов мониторинга
2.5.	Сроки мониторинга	Дается обоснование и указывается сроки и этапы проведения мониторинга
2.6.	Параметры, показатели, критерии мониторинга	Осуществляется обоснование и выбор параметров, показателей и критериев. Приводится их перечень.
2.7.	Методы мониторинга	Описываются рекомендуемые методы мониторинга анализа и оценки ожидаемых результатов мониторинга
2.8.	Методы сбора, обработки и анализа информации	Указывается описание методов сбора, обработки и анализа информации по процедурам мониторинга
2.9.	Инструментарий мониторинга	Содержит образцы и описание форм информационного обеспечения мониторинга (совокупность средств) для измерения данных
2.10.	Обработка и анализ информации, подведение итогов	Приводится порядок и регламент расчетных операций для процедур мониторинга
2.11.	Отчетные данные	Формируются требования, форматы и структуры отчетных данных
2.12.	Эффективность проведения мониторинга	Приводятся экономические критерии формирования бюджета мониторинга

В соответствии предлагаются следующие с концептуальным подходом предлагается следующая интерпретация и комментарии к методике мониторинга образовательного процесса вуза согласно приведенного формата ее представления

Методологическая часть. Она характеризуется обоснованием актуальности проблемы и путей ее решения, формулировкой цели и задачи мониторинга, определением объекта и предмета оценки и т.д.

Методическая часть. Данный элемент предусматривает определение источников данных, регламента процедур проведения, критериев и показателей оценки, расчета показателей и методов оценивания, формирование экспертов и т.д. Предлагается следующая методика проведения мониторинга образовательного процесса вузов, которая включает условные 3 стадии реализации:

- организационная;

- информационно-практическая;
- заключительная.

Каждая из данных стадий имеет свои этапы с соответствующими бизнес-процессами.

Организационная стадия мониторинга. Данная стадия относится к подготовительному этапу мониторинга. Поэтому на этой стадии разрабатывается концепция проведения мониторинга образовательной деятельности вузов.

Информационно-практическая стадия. На этой стадии мониторинга осуществляется формирование и реализация основных бизнес-процессов подготовки аналитико-методического этапа, осуществляется рассмотрение и решение следующих вопросов:

3. Заключительная стадия мониторинга. Итоговой этап имеет целью определить эффективность проведенного мониторинга. Эффективность проведенного мониторинга заключается в объективном анализе выполнения поставленных в исследованных задач, доступности и востребованности результатов мониторинга, а также в минимальных экономических затратах.

Актуализация процедур и подведение итогов мониторинга.

Мониторинг образования вузов как инструмент исследования состояния и обеспечения эффективности образовательной деятельности вузов осуществляется реализацией соответствующих оценочных бизнес-процессов согласно установленных процедур. В этой связи методика проведения мониторинга предусматривает разработку соответствующих регламентов, требований по организации и подведению итогов мониторинга, а также разработке рекомендаций.

Разработку методик мониторинга образовательного процесса удобно проиллюстрировать в виде составляющих ее элементов, функционал реализации которых приводим в этапах согласно формата методики (Табл1).

Формулировка цели мониторинга. Мониторинг вуза целью осуществление постоянного наблюдения (диагностики) за образовательными бизнес-процессами и результатами образования.

2. Задачи мониторинга:

- развитие единых нормативных подходов;
- создание механизма мониторинговых исследований на университетском уровне;
- разработка и реализация эффективных технологий сбора, обработки, хранения и анализа информации;

- формирование единой системы анализа и оценки функционирования образовательного процесса;
- формирование достоверной, оперативной и объективной информации о состоянии организации, содержания и результатах деятельности;
- оптимизация информационных потоков образовательного процесса различных уровней;
- совершенствование технологии информационно-методического обеспечения деятельности;
- систематический анализ хода и качества выполнения требований образовательного законодательства и локальных нормативов университета;
- разработка и принятие управленческих решений согласно итогам мониторинга.

3. Установление параметров и источников информации для процедур мониторинга. Для проведения мониторинга образовательного процесса вузов основными источниками являются:

- институциональные источники – отчетные и учетные данные вузов;
- внешние источники - нормативные данные, стандарты, государственные и международные документы.

4. Определение объектов, субъектов и предметов мониторинга. Мониторинг образования, как оценочный метод исследования, имеет непосредственную связь с его объектом, субъектом и предметом [3. с.133]. Предлагаются следующие понятия:

- объектом являются вузы с соответствующими параметрами образовательной деятельности, проходящие оценочные процедуры по определению эффективности результатов работы;
- в субъекты мониторинга входят участники образовательного процесса, в соответствии с должностными обязанностями, занимающиеся мониторингом на любом этапе.
- предмет мониторинга - уровни состояния обеспеченности и использования инфраструктуры учебного процесса в периоды прохождения мониторинга и фиксируемые базы данных измерений, а также динамика изменений.

5. Определение этапов и сроков проведения мониторинга образовательного процесса согласно разрабатываемой методике. Методика мониторинга включает следующие этапы:

- учет и актуализация требований и регуляторов требований;
- формулировка цели и задач мониторинга;
- установление и соблюдение сроков мониторинга;

- описание характеристики объекта и предмета мониторинга;
- формирование и описание критериев и показателей мониторинга;
- установление и реализация инструментов методов и средств реализации мониторинга (анкеты, опросные листы, формы таблиц, программное обеспечение, аппаратно-технические средства и т.д.);
- ресурсное обеспечение;
- анализ, оценка и отчет результатов мониторинга.

6. Формирование параметров, критериев и показателей, контролируемых в рамках разработанной методики мониторинга образовательного процесса вузов. Число показателей с учетом обобщенных признаков и для исключения их дублирования, а также удобства оценивания должно быть сведено до минимума. В то же время количество показателей должно быть достаточно емким и охватить основные направления деятельности образовательного процесса.

7. Определение методов проведения мониторинга и формы предоставления информации. Методология мониторинга вузов предполагает рассмотрения его как инструментарий изучения, исследования анализа и оценки эффективности результатов деятельности вузов в сравнении со стандартным (нормативным) показателем с описанием актуализации процессов мониторинга.

8. Методы сбора, обработки и анализа информации. Для обработки собранной информации применяются математические методы, текстовые, графические, табличные и статистические редакторы. Метод сбора и регистрации данных будет основываться на отчетных и учетных материалах официального уровня и имеющих подтверждения соответствующими подразделениями вуза.

9. Инструментарий мониторинга. Инструментарий характеризуется описанием используемых методик, диагностических и оценочных процедур, формы для результатов анализа. Предметом измерений и анализа мониторинга образовательного процесса является состояние и уровень обеспеченности параметров образовательного процесса вуза.

10. Обработка и анализ информации, подведение итогов. Для обработки результатов мониторинга образовательного процесса применением математического аппарата будут разработаны численные методы расчета и алгоритмы вычисления значений показателей эффективности.

11. Формирование отчетных данных мониторинга. Для изучения, анализа, внесения соответствующих данных, осуществления в последующем

расчетных операций, а также представления результатов мониторинга разрабатываются учетные и отчетные формы.

12. Эффективность проведения мониторинга. Обоснованный выбор объективных критериев оценки эффективности образовательного процесса вузов станет основой для формирования условий обеспечения его функциональности.

Заключение. Формирование и реализация модели мониторинга основываются на методах мониторинга. Методика мониторинга образования характеризуется совокупностью концептуальных теоретических и прикладных описаний, которые касаются цели, содержания, структуры, функций, процедур, этапов, средств и т.д.

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РАЗРАБОТКА АВТОМАТИЗИРОВАННОЙ СИСТЕМЫ ФОРМИРОВАНИЯ РЕЙТИНГА КОЛЛЕДЖЕЙ КЫРГЫЗСКОЙ РЕСПУБЛИКИ

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Аннотация. Статья посвящена разработке автоматизированной системы для формирования рейтинга колледжей Кыргызской Республики (АСФРК). В ней рассматривается процесс проектирования и разработки системы, которая призвана оценивать и ранжировать колледжи в соответствии с заранее установленными критериями и параметрами. В тексте анализируется современное состояние образовательной системы как на глобальном уровне, так и в Кыргызстане, с акцентом на необходимость внедрения рейтинговой системы для колледжей. Авторы

подробно описывают этапы создания автоматизированной системы, включая декомпозицию процесса рейтингования, построение контекстной диаграммы текущего состояния (AS-IS), разработку структуры базы данных и диаграммы вариантов использования. Также представлены результаты предварительного исследования и определение критериев для рейтингования. Статья акцентирует внимание на значимости объективности и надежности рейтинговой системы, а также на необходимости ее постоянного обновления и улучшения. В заключение обосновывается выбор технологий реализации и архитектуры разрабатываемого программного обеспечения.

Ключевые слова: автоматизированная информационная система, рейтинг колледжей, формирование, проектирование, образование, Кыргызская Республика, архитектура MVC(Model View Controller), Entity Framework (C#), MS SQL Server, Веб-приложение – HTML, JavaScript.

Введение.

В условиях глобализации и интернационализации среднего профессионального образования, рейтинговая система становится важным инструментом оценки деятельности колледжей. Рейтинг колледжей призван также обеспечить наиболее полной информацией потенциальных абитуриентов, студентов, родителей, профессиональных сообществ и работодателей о потенциале колледжей.

В современном мире образовательные учреждения играют важную роль в формировании будущего национального потенциала. Однако, для того чтобы выбрать лучшее образовательное учреждение, необходимо иметь доступ к информации о его качестве и эффективности. Для успешного функционирования колледжей необходимо оценить их эффективность, качество образования и внутреннюю организацию. В этом контексте разработка Автоматизированной системы формирования национального рейтинга колледжей становится актуальной задачей.

В настоящее время существует множество систем формирования рейтингов колледжей, каждая из которых использует свои собственные методы и критерии для оценки качества образования, научно-исследовательской деятельности, социальной и культурной активности и других факторов [1]. В Соединенных Штатах существует множество национальных рейтингов колледжей, составленных из таких источников, как US News & World Report, Forbes, Princeton Review, Washington Monthly, QS World University Rankings, Times Higher Education World University Rankings [2,3] и других. Это лишь несколько примеров систем формирования рейтингов колледжей, и каждая система имеет свои преимущества и недостатки. При выборе колледжа для

обучения студентам рекомендуется рассмотреть несколько рейтинговых систем и учитывать свои собственные цели и приоритеты.

На данный момент аналогов систем по формированию национального рейтинга колледжей в Кыргызской Республике нет, таким образом появилась задача – разработка автоматизированной системы по формированию объективного рейтинг колледжей КР.

Целью данной работы является создание комплексной системы оценки качества образования в колледжах, которая будет основываться на объективных критериях.

Система помогает достичь целей колледжа, комбинируя все необходимые решения задачи в одну платформу. Задачи как: обеспечение доступа к рейтингу заинтересованным лицам в виде веб-сайта, формирование объективного национального рейтинга колледжей, возможность удаленно проводить анкетирование. Использование при этом информационных систем (ИС) значительно повышает достоверность оценки, а также позволяет увеличить производительность и сократить затраты человеческих и временных ресурсов.

Таким образом, система национального рейтинга колледжей Кыргызской Республики является актуальной и важной, и ее дальнейшее развитие и улучшение могут способствовать повышению качества среднего – профессионального образования в стране.

Методика национального институционального рейтинга колледжей

Нашей исследовательской командой было проведено исследование рейтингов вузов и колледжей, основных их показателей и критериев оценки [2,3,4]. На основе этого анализа [3, 5, 6] разработала методику формирования национального рейтинга колледжей Кыргызской Республики [9] и согласно этой методике система включает 5 анкет: Анкета колледжа, Анкета работодателей, Анкета цифровых навыков [7, 10], Анкета выпускника, Анкета студента.

Методика определения национального рейтинга колледжей Кыргызстана» [9] состоит из 8 критериев и определенного количества индикаторов, каждый из которого имеют свой вес:

№ критерия	Критерии	Кол-во индикаторов	Вес h	Описание
	Сотрудничество с предприятиями	5	22	Показатели, отражающие оценку работодателями выпускников и их

				подготовленность для рынка труда
	Результаты обучения студентов и число образовательных программ, реализуемых в колледже	3	20	Показатели, отражающие качество обучения
	Качество преподавательского состава	6	20	Показатели, отражающие качество ППС колледжа
	Качество деятельности колледжа	2	10	Показатели, характеризующие условия и факторы, влияющие на качество деятельности колледжа.
	Цифровизация деятельности колледжа	7	10	Показатели, характеризующие уровень цифровизация деятельности колледжа
	Социальная деятельность	3	7	Показатели, связанные с социальными и общественными инициативами и деятельностью колледжа.
	Контингент студентов	2	6	Показатели по контингенту студентов
	Организация безопасной образовательной среды	5	5	Показатели, характеризующие условия безопасной образовательной среды
Всего		33	100	

Рейтинг будет составляться по этим критериям и их индикаторам. Так как система является веб-ориентированной, сбор данных и их подлинность можно будет производить за короткие сроки.

Расчет рейтинга

Рейтинг колледжей производится один раз в год. По каждому показателю производится расчет баллов, характеризующих позицию колледжа относительно других. Расчет рейтинга производится по 100 балльной системе согласно методике определения национального рейтинга колледжей Кыргызстана [9]. Главным объектом рейтингового исследования являются колледжи Кыргызстана, а предметом – количественные и качественные показатели по ключевым параметрам индикаторов рейтинга.

Пример:

В критерии «Сотрудничество с предприятиями» индикатор 1.1. Доля баз практик на производствах:

$$R_i = (R_{practic})/R_{POP} * 100 \%,$$

где $R_{practic}$ – кол-во баз практик на производстве, R_{POP} – число ПОП.

Максимум весовых процентов получает колледж с наибольшей долей баз практик.

Основу рейтинга составляют 8 критерия, 33 индикатора, которые агрегируются в интегральные данные, характеризующие все базовые направления деятельности колледжей.

Автоматизированная система формирования рейтинга колледжей КР (АСФРК). Бизнес-процесс формирования рейтинга (модель AS-IS) представлен в виде диаграммы IDEF0 на рисунках 1, 2 [12].

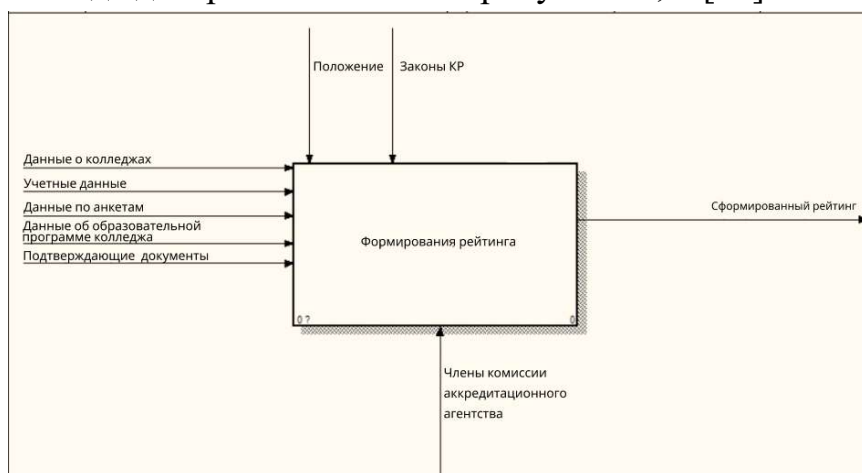


Рисунок 1. Контекстная диаграмма модели AS-IS - Формирование рейтинга

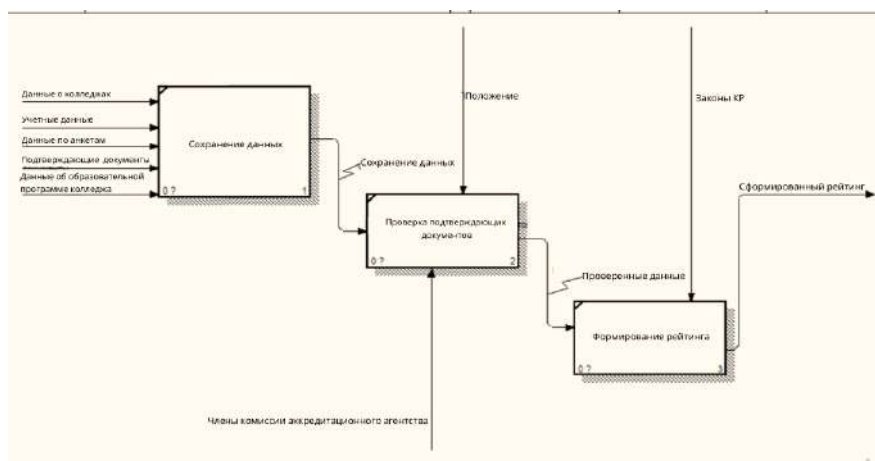


Рисунок 2. Декомпозиция процесса формирования рейтинга (диаграмма IDEF0)

На диаграммах можно увидеть, кто будет задействован в процессах формирования рейтинга колледжа и какие именно сведения необходимы для представленных процессов.

Для системы были определены функциональные требования:

Авторизация пользователей и распределение ролей;

Составление анкеты в соответствии с критериями оценки;

Формирование рейтинга;

Управление контентом веб-сайта;

Запись и хранение всех данных и документов в БД;

Вывод рейтинга по критериям.

Была разработана концептуальная модель, которая будет рассматриваться как основа для проектирования разработанной системы и описывает список всех пользователей системы, а также цели, которые они преследуют при её использовании (Рис 3).

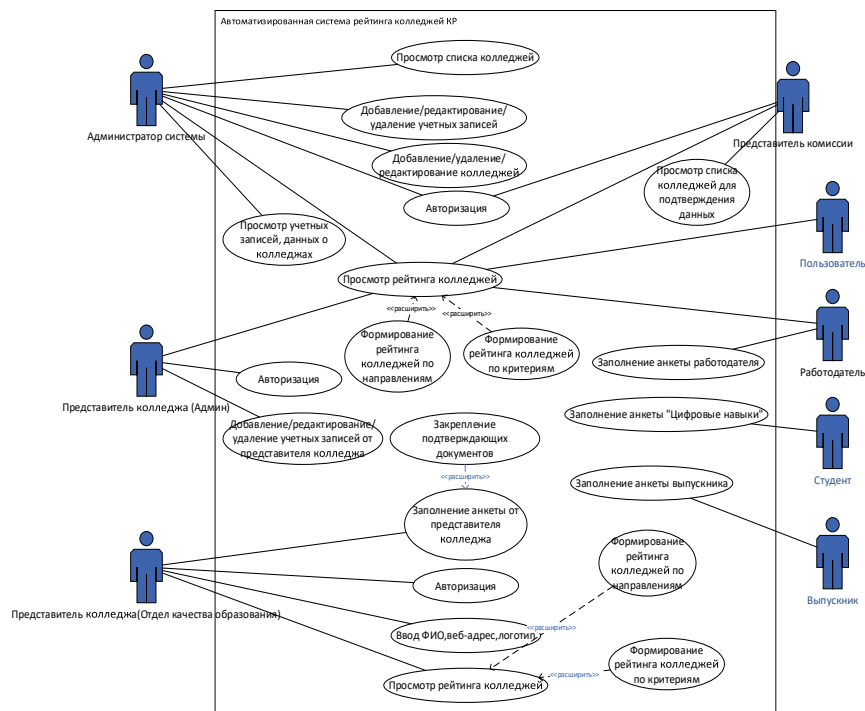


Рисунок 3. Диаграмма вариантов использования.

База данных состоит из 12 основных таблиц [13]: Users, User_Roles, Colleges, College_Questionnaire_Data, Year, Levels, Indicators, Criteria, Posititons, College_questionnaire_questions_mapping, College_questionnaire_questions, Employee_Questionnaire_Data, Student_Questionnaire_Data.

Для данной системы была выбрана архитектура MVC (Model-View-Controller). Архитектура MVC позволяет разделить код приложения на 3 части: Модель (Model), Представление (View) и Контроллер (Controller). Разделение на части позволяет упростить большой по объему код, а также избежать необходимости отдельной разработки пользовательского интерфейса.

Для разработки системы были выбраны:

Веб-приложение – HTML + JavaScript для реализации клиентской части и Фреймворк – ASP.NET MVC Framework,

База данных – MS SQL Server для реализации серверной части АСР

Веб-приложение “Автоматизированная система формирования рейтинга колледжей Кыргызской Республики” представляет собой базу данных основных сведений по колледжам Кыргызской Республики, предназначенную для выявления национального рейтинга по различным показателям критериев и индикаторов, а также автоматизирует процесс формирования рейтинга [11].

АСФРК предоставляет следующие возможности:

Ввод и редактирование данных колледжей: наименование, логотип, количество направлений, студентов, преподавателей, а также данные, необходимые для выявления рейтинга колледжей;

Редактирование выбранных показателей критериев и их групп;

Получение форм рейтинга по выбранным показателям критериев и их групп, а также общего рейтинга колледжей.

Заключение

Спроектированы диаграммы бизнес-процессов АСФРК, а также концептуальная модель в виде диаграммы вариантов использования (UseCase) и диаграмма классов с использованием инструментов MS Visio .

Разработанная автоматизированная система формирования рейтинга колледжей КР выполняет следующие функции [11]:

Авторизация пользователей;

Обеспечение доступа в системе по ролям пользователей;

Составление анкеты в соответствии с критериями;

Обработка введенных данных в форме;

Формирование рейтинга колледжей КР;

Запись и хранение всех данных и документов в БД;

Вывод рейтинга колледжей по критериям и по индикаторам.

Внедрение данной автоматизированной информационной системы рейтинга колледжей позволит получать объективную картину на рынке образовательных услуг, а также позволит делать выводы об эффективности управления колледжами и степени востребованности образовательных программ.

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TARMOQ HUJUMLARINI ANIQLASHDA SUN'IY INTELLEKT AHAMIYATI VA DARKTRACE DASTURI

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***Annotatsiya:** Maqolada asosan sun'iy intellektga asosida tarmoq hujumlarini aniqlovchi tizimlar va dasturlar,ularning bir biridan ustun jihatlari hamda bir nechta dasturiy vositalar haqida fikr yuritilgan. Shu bilan birgalikda Darktrace dasturiga ko'proq e'tibor qaratilgan.Ushbu dasturning kelib chiqishi va tashkilotlarda tutgan ahamiyati,qolaversa uchta asosiy ustunlik jihati hamda vatanimiz O'zbekistonda aynan shu soha ustida amalga oshirilayotgan chuqur izlanishlar haqida yoritib berildi.*

***Kalit so'zlar:** NIDS, SI texnologiyalari Darktrace, kiberxavfsizlik,tarmoq trafigi,tarmoq boshqaruvi,xavfsizlik platformalari,anomaliyalar.*

Kirish. Tarmoq hujumlarini aniqlashda sun'iy intellekt (SI) texnologiyalari keng qo'llaniladi. Ushbu texnologiyalar kiberxavfsizlikni ta'minlashda samarali vosita bo'lib, tarmoq trafikidagi noan'anaviy yoki zararli xatti-harakatlarni avtomatik ravishda aniqlashga yordam beradi .AIga asoslangan tarmoq hujumlarini aniqlash tizimlari (NIDS) tarmog'ingizni kiberhujumlardan himoya qilish uchun kuchli vositadir. Sun'iy intellektga asoslangan tarmoq hujumlarini aniqlash tizimlari tarmoq trafiginini tahlil qilish va zararli faoliyatni aniqlash uchun sun'iy intellekt (AI), xususan, mashina o'rganish (ML) va chuqur o'rganish (DL) dan foydalanadigan xavfsizlik tizimlaridir.

Asosiy qism. Tarmoq hujumlarini aniqlashda sun'iy intellekt (SI) texnologiyalari qo'llanilishi bir necha o'n yillar davomida rivojlanib kelmoqda, ammo bu texnologiyaning keng ko'lamda qo'llanilishi so'nggi 2000-yillardan boshlangan. Ayniqsa, kiberxavfsizlik sohasida sun'iy intellekt texnologiyalari 2010-yillarda rivojlanib, bugungi kunda keng tarqalgan holda ishlatilmoqda. Bu texnologiya tarmoq hujumlarini aniqlashda katta ahamiyat kasb etadi, chunki hujumlar ko'pincha murakkab, ko'p qatlamli va tezkor bo'lishi mumkin, sun'iy intellekt esa katta hajmdagi ma'lumotlarni tahlil qilish va real vaqt rejimida anomaliyalarni aniqlash imkonini beradi.Bu texnologi-yalarning rivojlanishi

asosan ilmiy doiralar va tadqiqotchilar tomonidan boshlan-gan, keyinchalik esa tijorat va kiberxavfsizlik kompaniyalari tomonidan omma-lashtirilgan. DARPA (Defense Advanced Research Projects Agency): AQSh mudofaa bo'limiga tegishli ushbu agentlik 1990-yillarda kompyuter tarmoqlarini himoya qilish uchun ilg'or texnologiyalarni rivojlantirish ustida ishlagan. Ular mashinasozlik algoritmlaridan foydalanib, hujumlarni oldindan aniqlash va tarmoq xavfsizligini oshirishda dastlabki qadamlarni qo'ygan.

University of California, Berkeley: 2000-yillarning boshida ushbu universitetda kiberxavfsizlik bo'yicha tadqiqotlar olib borilib, tarmoq xavfsizligida mashina o'qitish va anomaliya aniqlash bo'yicha dastlabki tadqiqotlar amalga oshirilgan.

IBM va Cisco: 2010-yillarning boshlarida IBM va Cisco kabi katta texnologiya kompaniyalari kiberxavfsizlik sohasida sun'iy intellekt va mashina o'qitish texnologiyalarini tarmoq hujumlarini aniqlash uchun ishlatishni keng rivojlantira boshladilar. IBM o'zining Watson superkompyuterini kiberxavfsizlikka moslashtirib, katta miqdordagi hujumlarni oldindan bashorat qilish va avtomatlashtirilgan tahlilni amalga oshirishda ishlatgan. Xususiylar kompaniyalar, xususan CrowdStrike va Palo Alto Networks kabi kiberxavfsizlik kompaniyalari, sun'iy intellekt asosida ishlaydigan tahdidlarni aniqlash va ularga qarshi kurashish vositalarini ishlab chiqishda muhim o'rin tutgan. SI texnologiyalari orqali tarmoq hujumlarini aniqlash va ularga qarshi choralar ko'rish sohasidagi rivojlanish davom etmoqda, va bu texnologiyalar global kiberxavfsizlikning ajralmas qismiga aylanib bormoqda.

Hozrgi kunda keng ko'lamda foydalanib kelinayotgan ,ayniqsa biznes va moliya sohasida qulayliklar yaratayotgan dasturlardan bo'lgan Darktrace e'tiborga sazovor desak mubolag'a bo'lmaydi.

Darktrace: Ushbu AI kiberxavfsizlik kompaniyasi tahdidlarni aniqlash uchun anomaliyalarni aniqlash deb ataladigan nazoratsiz mashinani o'rganish shaklidan foydalanadi. Ularning tizimi tarmoq trafigining odatiy namunalarini o'rganadi va keyin ushbu naqshlardan chetga chiqqan har qanday narsani shubhali deb belgilaydi.

Ushbu dastur biznesga real vaqt rejimida kiberhujumlar, jumladan, to'lov dasturi va elektron pochta orqali fishingning oldini olishga yordam beradigan kiberxavfsizlik yechimi. Bu IT-mutaxassislariga bulutli muhit va muhim infratuzilmaga tahdidlardan xavfsizlikni ta'minlash va zararli xatti-harakatlardan kelib chiqadigan yangi yoki insayder tahdidlarni aniqlash imkonini beradi. Ilova tashkilotlarga mashinalarni o'rganish texnologiyasi va tarmoq trafigini tahlil qilish (NTA) tizimi orqali korporativ tarmoq xavfsizligini ta'minlaydi. Professional

muntazam biznes operatsiyalariga ta'sir qilmasdan kiber uzilishlarning oldini olish uchun ilovadan foydalanishlari mumkin. Darktrace xulq-atvor tahlili, so'nggi nuqtani boshqarish, tahdidlarga javob berish, zaifliklarni skanerlash, oq ro'yxatga olish yoki qora ro'yxatga olish va boshqalar kabi ko'plab xususiyatlarni taklif etadi. Darktrace Cyber AI Loop foydalanuvchilarga xavfni kamaytirish va xavfsizlikni kuchaytirishga yordam beradi. Darktrace Cyber AI Loop uzluksiz fikr-mulohaza va korxonani o'zaro bog'langan tushunish asosida qurilgan. Darktrace IT ekotizimidagi odamlar va raqamli aktivlarni kuzatib boradi va himoya qiladi. Self-Learning AI tegishli bo'lmagan zararli xatti-harakatlarni aniqlash uchun oddiy hayot naqshlarini o'rganadi. Bunga insayder tahdidi, sanoat josusligi, IoT kompromislari, nol kunlik zararli dasturlar, ma'lumotlar yo'qolishi, ta'minot zanjiri xavfi va uzoq muddatli infratuzilma zaifliklari kiradi. Raqamli asrning yuksalishi o'z o'rnini kompaniyalarning biznes yuritish uslubini o'zgartirgan aqlli, tezroq va innovatsion texnologiyalarning rivojlanishiga olib keldi. Ammo texnologiya rivojlanishi bilan korxonalar duch keladigan tahdidlar ham oshib bormoqda. 2013-yilda Darktrace, sun'iy intellektga asoslangan kiberxavfsizlik dasturiy ta'minoti, tez rivojlanayotgan, murakkab tahdidlar landshaftini boshqarayotgan korxonalar uchun, ular raqamlashtirishga intilayotganda yechim sifatida paydo bo'ldi. Darktrace o'z-o'zidan o'rganadigan sun'iy intellektga asoslangan kuchli dasturiy ta'minot to'plamiga ega bo'lib, tashkilotlarga kibertahdidlarni qaerda bo'lishidan qat'i nazar, real vaqtda aniqlash, tekshirish va ularga javob berish imkonini beradi.

Darktrace ortidagi texnologiya Kembrij universitetidagi bir guruh matematiklar va razvedka mutaxassislari tomonidan tez rivojlanayotgan kiberxavfsizlik tahdidlarining kuchayishiga qarshi kurashishning yangi usulini nazarda tutgan. Ular orasida Markaziy razvedka boshqarmasining sobiq axborot direktori Alan Ueyd va MI5ning sobiq rahbari, Weardeyl KCB lord Evans ham bor edi. 2021-yil 30-aprelda, tashkil etilganidan atigi 8 yil o'tib, kompaniya London fond birjasida 2,37 milliard dollarga baholangan IPO-ni boshladi. Tashkil etilganidan keyingi yillarda Darktrace tezda AI kiberxavfsizlik bo'yicha yetakchi global o'yinchiga aylandi, unga dunyoning 100 dan ortiq mamlakatlaridagi 7400 dan ortiq tashkilot ishonadi. Kompaniya, shuningdek, 2016-yilda Info Security Global Excellence Awards mukofotida "Yilning eng yaxshi xavfsizlik kompaniyasi" nominatsiyasida bir qator mukofotlarga sazovor bo'ldi va Fast Company tomonidan 2022-yilda sun'iy intellekt sohasidagi eng innovatsion kompaniyalardan biri deb topildi.

Darktrace-ni ajratib turadigan 3 ta asosiy farqlovchilar:

Avtonom va avtomatik. Odamlardan imzolarni qo'lda aniqlash va doimiy ravishda yangilashni talab qiladigan ko'pgina an'anaviy xavfsizlik yechimlaridan

farqli o'laroq, Darktrace hech qanday inson aralashuvini talab qilmaydi. Buning o'rniga, dasturiy ta'minot buzilishlar yuzaga kelishidan oldin anomaliyalarni aniqlash va ularga javob berish uchun mavjud naqshlardan o'rganadi.

Proaktiv yondashuv. Tarmoqlarni boshqarish, jurnal monitoringi va SIEM kabi hozirgi kiberxavfsizlik himoyalarning aksariyati reaktivga asoslangan, ya'ni ular birinchi navbatda sodir bo'lgan voqealarga javob berishga va kelajakda takroriy hujumlarning oldini olishga qaratilgan. Bundan farqli o'laroq, Darktrace zaif tomonlarni oldindan aniqlash va ular yuzaga kelishidan oldin tashkilotlarni potentsial tahdidlardan himoya qilish uchun insoniy ko'nikmalarni oshirish maqsadida oldini olishga ustuvor ahamiyat beradigan kiberxavfsizlikka "doim" yondoshuvini taqdim etadi.

Tezlik va masshtablilik. Darktrace yordamida tahdidlarni tekshirish tezlik va miqyosda avtomatlashtirilib, sinovdan o'tish vaqtini 92% ga qisqartiradi. Bundan tashqari, Darktrace dasturiy ta'minoti mavjud xavfsizlik infratuzilmasi bilan uzluksiz integratsiya qilish uchun mo'ljallangan, barcha yirik bulutli provayderlar (jumladan, AWS, Google Cloud Platform va Microsoft Azure) bilan mos keladi va 1 milliongacha qurilmalarni qamrab oladi.

Butun jahon singari mustaqil O'zbekistonda ham tarmoq hujumlarini aniqlashda sun'iy intellekt (SI) texnologiyalari qo'llanilishi global tendentsiyaga mos ravishda rivojlanmoqda, ammo bu soha hali keng rivojlanish bosqichida turibdi. Mamlakatda raqamli xavfsizlikni ta'minlashga qaratilgan chora-tadbirlar doirasida SI texnologiyalari xususiy kompaniyalar, davlat tashkilotlari va muayyan sohalarda foydalanilmoqda. Quyida O'zbekistonda SI asosida tarmoq hujumlarini aniqlash qaysi sohalarda qo'llanilishi haqida ma'lumot berilgan:

1. Davlat sektori. O'zbekistonda davlat boshqaruvi va hukumat tizimlarining raqamlashtirilishi ortib borayotgan bir paytda, hukumat kiberxavfsizlik masalalariga katta e'tibor qaratmoqda. Davlat idoralari, jumladan, Axborot texnologiyalari va kommunikatsiyalarini rivojlantirish vazirligi (MITC), tarmoq xavfsizligini ta'minlash uchun sun'iy intellekt va avtomatlashtirilgan xavfsizlik tizimlaridan foydalanish bo'yicha loyihalar amalga oshirmoqda.

2020-yillarda qabul qilingan "Raqamli O'zbekiston 2030" dasturi doirasida kiberxavfsizlikni kuchaytirish uchun yangi texnologiyalar, shu jumladan SI asosida ishlaydigan tarmoq xavfsizlik platformalari joriy qilinmoqda. Ushbu dastur davlat sektori tizimlari va tarmoqlarini himoya qilishga qaratilgan.

2. Moliyaviy sektor. Banklar va moliyaviy tashkilotlar O'zbekistonda SI texnologiyalaridan foydalangan holda o'z tarmoqlarida xavfsizlikni kuchaytirishni boshlagan. Masalan, ba'zi banklar sun'iy intellekt yordamida tahlillar o'tkazib, tranzaksiyalarda anomaliyalarni aniqlash va potentsial firibgarlik va hujumlarni

oldindan aniqlash uchun foydalanmoqda. Uzcard, Humo kabi to'lov tizimlari va tijorat banklari o'zlarining raqamli tizimlarini himoya qilish uchun SI texnologiyalarini tatbiq etmoqdalar.

Bunda, xususan, mashina o'qitish algoritmlaridan foydalangan holda mijozlarning odatiy tranzaksiyalarini kuzatish va kutilmagan yoki shubhali harakatlarni aniqlash jarayonlari yo'lga qo'yilgan.

3. Telekommunikatsiya sektori. O'zbekistonning yirik telekommunikatsiya kompaniyalari, jumladan Uztelecom, Beeline, Ucell va boshqalar sun'iy intellekt texnologiyalaridan foydalangan holda tarmoqlardagi hujumlarni aniqlash va ularga qarshi choralar ko'rish maqsadida xavfsizlik yechimlarini joriy qilishmoqda. Bu kompaniyalar tarmoqlarini doimiy kuzatish va avtomatik ravishda hujumlarni bloklash imkoniyatiga ega bo'lgan SI asosidagi tizimlardan foydalanmoqda.

4. Ta'lim va ilmiy tadqiqot sektori. O'zbekistonda IT sohasidagi universitetlar va ilmiy tadqiqot muassasalari sun'iy intellekt va kiberxavfsizlik bo'yicha tadqiqotlar olib borishmoqda. Toshkentdagi Muhammad al-Xorazmiy nomidagi Axborot texnologiyalari universiteti va boshqa muassasalar SI texnologiyalarining tarmoq xavfsizligiga qo'llanishi bo'yicha tadqiqotlar o'tkazish bilan shug'ullanmoqda. Bu ilmiy faoliyat keyinchalik mamlakatdagi kiberxavfsizlikni rivojlantirishga hissa qo'shadi.

5. Xususiy sektor va startaplar. O'zbekistonda kiberxavfsizlik bozoriga qiziqish ortib borayotgan va startaplar tomonidan sun'iy intellekt yordamida ishlovchi xavfsizlik yechimlarini ishlab chiqishga urinishlar mavjud. Bulutli xizmatlar va tarmoqlarni himoya qilishga qaratilgan mahalliy va xorijiy kompaniyalar tomonidan sun'iy intellekt asosidagi xavfsizlik platformalari joriy etilmoqda.

Xususiy kompaniyalar o'z ichki tarmoqlarini himoya qilish va kiberxavfsizlikni kuchaytirish uchun SI texnologiyalari asosida ishlaydigan vositalardan foydalanishni kengaytirishga intilmoqda. Bunda xorijiy xavfsizlik platformalari va yechimlari, masalan, Kaspersky, Fortinet, va Cisco kabi xalqaro kompaniyalar mahsulotlari qo'llaniladi.

6. Elektron tijorat va onlayn xizmatlar. O'zbekistonda rivojlanayotgan elektron tijorat va onlayn xizmatlar sohalari ham kiberxavfsizlikka katta e'tibor qaratmoqda. Elektron tijorat platformalari SI yordamida o'z tarmoqlarini himoya qilish, mijozlarning tranzaksiyalarini kuzatish va firibgarlikdan himoyalani bo'yicha avtomatlashtirilgan yechimlarni joriy qilmoqda. O'zbekistonda sun'iy intellekt asosidagi tarmoq hujumlarini aniqlash texnologiyalari davlat, moliyaviy, telekommunikatsiya va xususiy sektorlarning kiberxavfsizlikni kuchaytirish bo'yicha say-harakatlarida tobora ko'proq qo'llanilmoqda. Biroq, SI

texnologiyalaridan to'liq va keng ko'lamda foydalanish hali rivojlanish bosqichida, va bu soha yaqin yillarda yanada jadal rivojlanishi kutilmoqda.

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IMPACT OF CYBERCRIME ON INDIVIDUALS, BUSINESSES, AND SOCIETY.

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Abstract. The article gives information on the impact of cybercrime on individuals providing some important data in numbers. The author states far-reaching consequences of cybercrime ranging from financial loss to legal repercussions.

Key words: cybercrime, economic impact, criminal activities

Did you know that cybercrime is one of the fastest-growing criminal activities in the world? In fact, according to the [report from PR Newswire](#), cybercrime has increased by a staggering 400% since the start of the COVID-19 pandemic, suggested FBI. This staggering increase highlights the need for greater awareness and prevention measures to protect against cyber threats.

The effects of cybercrime can be devastating, ranging from financial loss and identity theft for individuals to reputational damage and legal repercussions for businesses. Additionally, cybercrime can have far-reaching consequences for society, from economic impacts to national security concerns and an increase in cyberbullying and harassment. 55 million consumers were victims of identity theft in 2021, as per a report from [Norton](#). This alarming number shows no signs of slowing down, and it's no longer a question of if you or your business falls victim to a cyberattack.

The good news is that there are preventative measures you can take to protect yourself and your business. This article will explore the effects of cybercrime on individuals, businesses, and society and provide suggestions for preventative measures to help you stay safe in the digital age.

Cybercrime is a growing threat to individuals in the digital age. With the increasing sophistication of cyberattacks, individuals are becoming more

vulnerable to financial loss, identity theft, emotional trauma, and damage to their reputations.

One of the most common effects of cybercrime on individuals is financial loss. Cybercriminals often use various methods such as phishing, hacking, and malware to gain access to an individual's financial information, such as credit card numbers, bank account details, and passwords. This can result in the loss of money through unauthorized transactions, which can be difficult to recover.

Identity theft is another significant consequence of cybercrime for individuals. Cybercriminals can use stolen personal information such as social security numbers, driver's license numbers, and dates of birth to open new accounts, take out loans, and commit other types of fraud in an individual's name. This can result in financial loss and significant legal and administrative headaches in recovering the individual's identity.

In addition to financial loss and identity theft, cybercrime can cause emotional trauma. Victims of cybercrime often feel violated and vulnerable, leading to fear and anxiety. This can have a long-lasting impact on an individual's mental health, especially if they feel isolated and unable to seek help.

Lastly, cybercrime can cause damage to an individual's reputation. Cybercriminals can use stolen information to post embarrassing or damaging content online, leading to a loss of credibility and trust. The effects of reputational damage can be especially damaging in professional settings, leading to job loss or difficulty finding employment.

Cybercrime can have devastating financial consequences for businesses, particularly small and medium-sized enterprises. A successful cyberattack can result in the loss of funds, intellectual property, and customer data, which can be costly to recover. In some cases, businesses may even be forced to shut down due to the financial impact of cybercrime.

Cybercrime can cause irreparable damage to a business's reputation. A successful cyberattack can expose sensitive customer data, undermining trust and confidence in a business's ability to protect its customers' information. This can lead to losing loyal customers, decreasing revenue, and reducing market share.

Businesses can face significant legal repercussions as a result of cybercrime. Data breaches can result in legal action, fines, and penalties, particularly in heavily regulated industries like healthcare and finance.

Cybercriminals can target businesses to steal intellectual property, such as trade secrets and patents. The loss of intellectual property can be a significant blow to businesses, particularly those that rely on innovation and research to remain competitive. It can further lead to decreased revenues, lost opportunities, and

reduced market share, potentially affecting the long-term sustainability of the business.

Cybercrime can have a significant impact on the economy. It can result in financial losses for individuals, businesses, and governments. The cost of repairing damage to systems, recovering lost data, and preventing future attacks can be substantial. It can also impact consumer confidence in online transactions, decreasing business sales and revenue. Additionally, cybercrime can result in the loss of intellectual property, negatively affecting industry innovation and competitiveness.

Cybercrime can pose a serious threat to national security. Attacks on government and military networks can compromise sensitive information and disrupt operations. Cybercriminals can also use technology to engage in espionage, stealing state secrets, and disrupt critical infrastructure, such as power grids and transportation systems. Additionally, cybercrime can be used for political and ideological purposes, leading to social and political unrest.

Cybercrime can have a significant impact on healthcare and public safety. Attacks on healthcare systems can compromise sensitive patient data and disrupt medical services, which can have life-threatening consequences. Additionally, attacks on critical infrastructure, such as emergency response systems and transportation networks, can put public safety at risk. Cybercriminals can also use technology to commit identity theft, which can financially harm individuals.

Cybercrime can lead to an increase in cyberbullying and harassment. Cybercriminals can use technology to target individuals and groups, spreading malicious content and harassing messages. This can result in emotional and psychological harm and damage to reputations and relationships. Cyberbullying and harassment can also hurt mental health, leading to depression and anxiety. Additionally, cybercrime can spread misinformation, which can have serious social and political consequences.

A social media manipulation is a form of cybercrime involving using social media platforms to influence, deceive, or manipulate individuals or groups for political, financial, or personal gain. This can take many forms, including spreading false information, creating fake profiles or personas, and using bots or automated accounts to amplify messages.

The effect of social media manipulation on society can be significant, as it can undermine the integrity of democratic processes, promote extremist ideologies, and erode public trust in institutions and information sources. Hence knowing prevention strategies is important. Prevention and mitigation strategies are essential in protecting individuals, businesses, and society from the negative

impacts of cybercrime. Cybersecurity threats are becoming increasingly sophisticated and prevalent. There are various measures that individuals, businesses, and governments can take to prevent and mitigate the impact of cybercrime, as follows.

Individuals can take several measures to ensure protection from cybercrime, including. Create strong passwords and use two-factor authentication. Keeping software and operating systems up-to-date with the latest security patches. Avoid using public Wi-Fi networks and a Virtual Private Network (VPN). Being cautious of suspicious emails and messages, especially those containing links or attachments

Backing up important data regularly. Educating themselves about cybersecurity threats and best practices.

Businesses can take several measures to ensure protection from cybercrime, including.

Conducting regular security risk assessments

Implementing access controls and monitoring for suspicious activity

Providing cybersecurity training for employees

Implementing strong passwords, two-factor authentication, and encryption for sensitive data

Implementing a robust backup and disaster recovery plan

Regularly updating software and hardware systems

Investing in creator insurance can provide content creators with financial protection and peace of mind. The top benefits are:

Creator insurance protects content creators from financial loss due to legal disputes or other risks. It covers legal fees, damages, and other costs associated with legal claims, such as copyright infringement, defamation, or privacy violations.

Creator insurance can also protect intellectual property and cover injuries or damage to property or equipment. It provides peace of mind and allows creators to focus on their work without worrying about potential financial losses or legal disputes.

Cybercrime is a growing threat that poses significant risks to individuals, businesses, and society. As technology advances, the number and severity of Cybercrime incidents are expected to increase, leading to devastating financial and reputational losses. We must take action to combat Cybercrime through increased awareness and preventative measures.

Individuals should implement cybersecurity best practices and invest in Cyber insurance. Businesses must prioritize cybersecurity and training to prevent

Cybercrime. Governments can implement policies that hold perpetrators accountable and promote cybersecurity best practices.

In short, combating Cybercrime requires a collective effort from individuals, businesses, and governments. By working together and taking proactive steps, we can reduce the risks of Cybercrime and protect ourselves from its devastating consequences.

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THE DISCOURSE OF EDUCATIONAL TECHNOLOGIES.

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Abstract. This article explores the discourse surrounding educational technologies, emphasizing their impact on teaching and learning processes. By employing this structure, we investigate current trends, methodologies, results, and discussions in this rapidly evolving field.

Keywords: E-Learning, Online Learning, Adaptive Learning, Gamification, Artificial Intelligence, Digital Divide, Engagement, Personalization, Constructivism.

Background: Overview of educational technologies and their emergence. **Importance:** Significance of integrating technology in education. **Research Aim:** To analyze the current discourse and its implications for educators and students. **Literature Review:** Describe the approach taken to gather relevant literature on educational technologies. **Data Collection:** Discuss the sources of information (academic journals, conferences, etc.). **Analytical Framework:** Explain the criteria for selecting and analyzing data

Trends in Educational Technologies: Rise of online learning platforms. Use of AI and adaptive learning systems. Gamification and interactive tools in classrooms. **Impact on Learning Outcomes:** Studies showing improvement in student engagement and achievement. **Challenges and barriers to effective implementation.**

Theoretical Implications: Discuss how these technologies align with educational theories (constructivism, connectivism). **Practical Implications:** Address how educators can effectively integrate these technologies. **Future Directions:** Explore emerging technologies and potential future trends in educational settings. **Summary of Findings:** Recap the key insights gained from the analysis. **Recommendations:** Suggest areas for further research and practical applications in educational settings. A list of scholarly articles, books, and other resources cited throughout the paper.

The discourse surrounding educational technologies has evolved significantly over the past few decades, driven by rapid advancements in digital tools and pedagogical practices. As educators increasingly integrate technology into their classrooms, understanding its implications becomes crucial. This discourse encompasses a wide array of topics, including online learning, adaptive

learning systems, and the impact of technology on student engagement and learning outcomes.

The Evolution of Educational Technologies

Historically, educational technologies began with basic tools such as overhead projectors and audiovisual aids. The advent of computers in the 1980s marked a significant turning point, leading to the development of software designed specifically for educational purposes. In the 21st century, the rise of the internet transformed educational practices, giving birth to e-learning platforms and massive open online courses (MOOCs). This evolution reflects a shift towards a more interconnected and flexible learning environment. Today, several key trends define the discourse of educational technologies:

Online Learning Platforms: Platforms like Coursera, edX, and Khan Academy have democratized access to education, allowing learners from diverse backgrounds to engage with high-quality content. The COVID-19 pandemic accelerated this trend, making remote learning a necessity.

Adaptive Learning Systems: Technologies that personalize learning experiences based on individual student performance are gaining traction. These systems analyze data to tailor content and pacing, enhancing student engagement and effectiveness.

Gamification: Incorporating game-like elements into learning environments has proven effective in boosting motivation and participation. By leveraging rewards and competition, educators can create a more engaging classroom experience.

Artificial Intelligence: AI tools, such as chatbots and intelligent tutoring systems, are becoming common in educational settings. These technologies provide immediate feedback and support, allowing for a more personalized learning journey. Research indicates that the integration of educational technologies can lead to improved learning outcomes. Studies show that students using online platforms often exhibit higher engagement levels and better retention of information. However, challenges remain, including issues of accessibility, equity, and the digital divide. It is essential to ensure that all students have access to the necessary resources and training to benefit from these technologies. The discourse surrounding educational technologies aligns closely with various educational theories. For instance, constructivism emphasizes the role of active engagement in learning, which technology can facilitate through interactive and collaborative tools. Similarly, connectivism highlights the importance of networks and relationships in learning, a principle well-supported by online and social learning platforms. To effectively integrate educational technologies, educators must be

equipped with both technical skills and pedagogical knowledge. Professional development programs that focus on technology integration strategies can help teachers feel more confident in utilizing these tools. Collaboration among educators, technology specialists, and administration is also crucial in creating a supportive environment for technology-enhanced learning. As technology continues to evolve, so will its role in education. Emerging trends, such as virtual and augmented reality, hold promise for immersive learning experiences. Moreover, ongoing research into the efficacy of various technologies will be essential in guiding future implementations and ensuring they meet educational needs.

Conclusion

The discourse of educational technologies is dynamic and multifaceted, reflecting the complexities of modern education. As we delve deeper into this field, it is vital to critically assess the benefits and challenges posed by these technologies. By embracing innovation while remaining mindful of accessibility and equity, we can harness the ultimate potential of educational technologies to enhance learning for all students.

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CREATING A METHODOLOGY AND SYSTEM FOR EVALUATING LABOR EFFICIENCY (KPI) OF EMPLOYEES IN PROFESSIONAL EDUCATIONAL INSTITUTIONS: A CASE STUDY OF THE FERGANA BRANCH OF TUIT

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Annotation: *In today's competitive educational landscape, measuring the efficiency of employees in professional educational institutions has become increasingly important. This paper presents a comprehensive methodology and system for evaluating employee labor efficiency through Key Performance Indicators (KPIs), focusing on the Fergana Branch of Tashkent University of Information Technologies (TUIT). The proposed framework aims to enhance productivity, accountability, and overall institutional performance.*

Key words: *Methodology, system, KPI, technologies*

Introduction: In the contemporary educational landscape, the importance of measuring employee performance and labor efficiency in professional educational institutions cannot be overstated. As educational demands evolve, institutions face increasing pressure to deliver high-quality education while ensuring that their workforce is both effective and motivated. The Fergana Branch of Tashkent University of Information Technologies (TUIT) is no exception to this trend, as it strives to maintain its reputation as a leading institution in the region.

The concept of labor efficiency is multifaceted, encompassing various aspects of employee performance, including teaching effectiveness, research contributions, and overall engagement with institutional goals. Effective evaluation of these dimensions is essential for fostering a culture of accountability and continuous improvement within the institution. By establishing a systematic approach to assessing employee performance through Key Performance Indicators (KPIs), educational institutions can gain valuable insights into their operational strengths and weaknesses.

KPIs serve as quantifiable measures that allow institutions to track progress toward their strategic objectives. In the context of professional educational institutions, KPIs can provide a clear framework for evaluating not only individual

employee contributions but also the overall effectiveness of programs and initiatives. This is particularly relevant in a rapidly changing educational environment, where adaptation and responsiveness to both student needs and market demands are critical.

Moreover, the successful implementation of a KPI system can lead to enhanced employee motivation and satisfaction. When employees understand how their performance is measured and how it aligns with institutional goals, they are more likely to engage in their professional development and contribute positively to the institution's mission. This alignment is essential for fostering a collaborative environment where all stakeholders, including faculty, administration, and students, work together toward common objectives.

The Fergana Branch of TUIT has recognized the need for a robust methodology to evaluate labor efficiency and has embarked on developing a comprehensive KPI framework tailored to its unique context. This study aims to explore the intricacies of creating such a methodology, addressing the specific challenges faced by the institution while also providing actionable recommendations for effective implementation.

In summary, the establishment of a systematic approach to evaluating labor efficiency through KPIs is not only beneficial for the Fergana Branch of TUIT but also serves as a model for other professional educational institutions aiming to enhance their operational effectiveness. This research will contribute to the ongoing discourse on performance evaluation in education, providing insights that can inform policy and practice both locally and globally.

Methodology: The methodology for evaluating labor efficiency through Key Performance Indicators (KPIs) at the Fergana Branch of Tashkent University of Information Technologies (TUIT) is structured to ensure a comprehensive and systematic approach. This methodology encompasses several key steps, each designed to facilitate the effective measurement and analysis of employee performance in a professional educational context.

The first step involves conducting a thorough literature review to explore existing frameworks and models for KPI evaluation in educational settings. This review will identify best practices and established methodologies from various institutions globally. Understanding the theoretical underpinnings of KPI systems will provide a foundation for developing a tailored approach suitable for the Fergana Branch.

Based on the insights gained from the literature review, the next phase is to collaborate with stakeholders—faculty members, administrative staff, and students—to identify and classify relevant KPIs specific to the institution's goals.

This participatory approach ensures that the KPIs reflect the diverse roles of employees and the expectations from various stakeholders. Key areas for KPI identification may include:

Academic Performance: Metrics such as student retention rates, graduation rates, and examination pass rates.

Teaching Quality: Indicators like student feedback on course evaluations, the frequency of innovative teaching methods employed, and class attendance rates.

Research Contributions: Metrics that track the number of publications, research grants received, and participation in academic conferences.

Employee Engagement: Indicators that measure job satisfaction through surveys, professional development participation, and peer evaluations.

Data Collection Methods, Once the KPIs are identified, a robust data collection strategy is essential. This involves using both quantitative and qualitative methods:

Surveys: Distributing structured surveys to students and staff to gather numerical data on performance and satisfaction.

Institutional Records: Analyzing existing records related to academic performance, such as grades, attendance, and completion rates.

Qualitative Data Collection:

Interviews: Conducting one-on-one interviews with faculty and administrative staff to gain deeper insights into the perceived effectiveness of teaching and institutional support.

Focus Groups: Organizing focus group discussions with students to explore their experiences and gather feedback on teaching quality and learning outcomes.

Data Analysis Techniques, after collecting the data, the next step involves analyzing the information to derive meaningful insights. This may include:

Descriptive Statistics: Utilizing statistical methods to summarize and describe the collected data, providing an overview of trends and patterns.

Correlation Analysis: Examining relationships between different KPIs to identify potential areas for improvement. For instance, analyzing the correlation between teaching quality indicators and student performance metrics.

Comparative Analysis: Evaluating performance across different departments or faculty members to identify best practices and areas needing support.

Implementation of the KPI System, with the data analyzed, the findings will inform the creation of a KPI framework that is integrated into the existing performance evaluation processes at the Fergana Branch. This framework will include:

Performance Dashboards: Developing user-friendly dashboards that allow faculty and administration to visualize KPI data in real-time, facilitating ongoing monitoring and feedback.

Regular Review Meetings: Establishing a schedule for periodic review meetings where faculty and staff can discuss performance metrics, share insights, and collaboratively develop improvement strategies.

Feedback and Continuous Improvement, to ensure the long-term success of the KPI system, a mechanism for continuous feedback and improvement will be established. This may involve:

Annual Evaluations: Conducting annual evaluations of the KPI framework to assess its effectiveness and relevance, making adjustments as necessary based on stakeholder feedback.

Professional Development: Offering training sessions and workshops to help faculty understand the KPI system and leverage it for their professional growth.

Results. Preliminary findings indicate that the implementation of KPIs has led to a noticeable improvement in employee performance and student outcomes. Regular feedback mechanisms have empowered staff to take ownership of their professional development, thereby increasing overall productivity.

Conclusion. Creating a structured methodology and system for evaluating labor efficiency through KPIs is essential for professional educational institutions. The case study of the Fergana Branch of TUIT demonstrates that such a framework not only enhances employee performance but also contributes to the overall success of the institution. Future research should explore the long-term effects of KPI implementation and the potential for scaling the model across other educational institutions.

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KO'RINADIGAN VA INFRAQIZIL DIAPAZONLARDAGI TASVIRLAR

Asrayev Muhammadmullo Abdullajon o'g'li

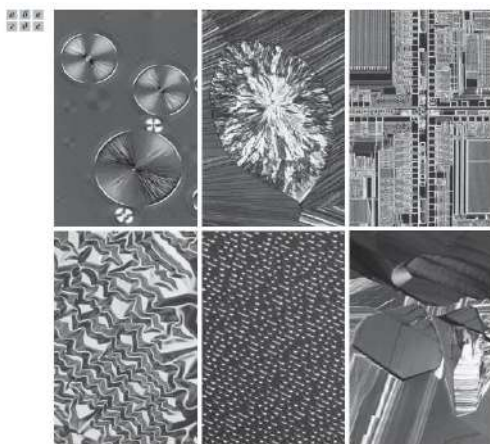
Dasturiy injiniring kafedراسي mudiri Texnika fanlari bo'yicha falsafa doktori, PhD

Annotatsiya. Elektromagnit spektrning ko'rinadigan diapazoni bizga eng tanish ekanligini hisobga olsak, ushbu diapazondagi tasvirlardan foydalanish sohasi qolgan barcha narsalarga qaraganda ancha kengroq bo'lishi ajablanarli emas. Infraqizil tasvirlar ko'pincha ko'rinadigan tasvirlar bilan birgalikda ishlatiladi, shuning uchun biz tasvirlash uchun ikkala diapazonni bitta bo'limda birlashtirdik.

Kalit so'zlar: Tasvir, elektromagnit, spektr, mikroskopiya, masofa, zondlash, to'lqin, CD-ROM, infraqizil diapazonlar.

Keyingi muhokamada yorug'lik mikroskopiya, astronomiya, masofadan zondlash, sanoat va huquqni muhofaza qilish sohaları foydalanish sohalariga misol sifatida muhokama qilinadi. 1-rasmda optik mikroskop yordamida olingan tasvirlarning bir nechta misollari keltirilgan. Misollar farmatsevtika va mikroskopik ishlab chiqarish nazoratidan tortib material tavsifigacha. Hatto bitta mikroskopda ham qo'llash mumkin bo'lgan ko'plab sohalar juda keng va batafsil tasvirlab bo'lmaydi. Bunday tasvirlarga qo'llash uchun talab qilinishi mumkin bo'lgan ishlov berish variantlarini tasavvur qilish qiyin emas, ularning vizual sifatini yaxshilashdan tortib, turli o'lchovlarni amalga oshirishgacha. Ko'rinadigan tasvirni qayta ishlashning yana bir muhim sohasi - bu odatda ko'rinadigan va infraqizil spektral diapazonlarda bir nechta zonalarni qamrab oladigan yer yuzasini masofadan zondlash.

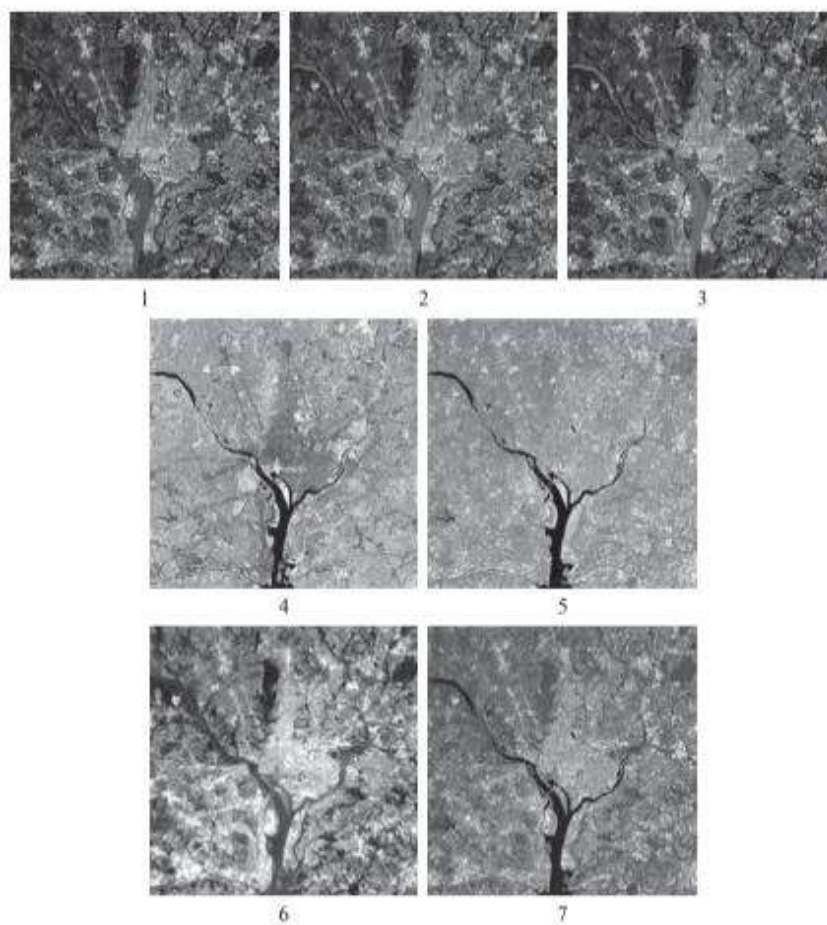
Ovoz to'lqinlari yordamida tasvirlarni qurish geologik tadqiqotlar, sanoat va tibbiyotda qo'llaniladi. Geologiyada tovush tebranishlari tovush spektrining pastki qismidagi (yuzlab gerts) chastotalar bilan, boshqa sohalarida esa tasvirlash uchun megaherts (million gerts) chastotali ultratovushli tebranishlardan foydalaniladi. Geologiyada tasvirni qayta ishlashning eng muhim tijorat qo'llanilishi neft va boshqa foydali qazilmalarni qidirishda. Yerning ichki qismi haqida ma'lumot olib yuradigan tasvirni shakllantirishda asosiy usullardan biri og'ir



yuk mashinasi va katta tekis po'lat platformadan foydalanishdir.

1-rasm. Optik mikroskopdagi tasvirlarga misollar. (a) Taxol (saratonga qarshi dori), kattalashtirish $250 \times$. (b) xolesterin, 40 marta kattalashtirish. (c) Mikroprotessor, $60x$ kattalashtirish. (d) nikel oksidining yupqa plyonkasi, kattalashtirish $600 \times$. (e) Musiqa diskining yuzasi, kattalashtirish $1750 \times$. (e) Organik supero'tkazuvchi material, $450x$ kattalashtirish.

LANDSAT ning asosiy vazifasi global atrof-muhit monitoringi uchun koinotdan Yer tasvirlarini qabul qilish va uzatishdir. Spektr intervallari mikron (mkm) da to'lqin uzunliklari bilan ifodalanadi; Eslatib o'tamiz, $1 \text{ mkm} = 10^{-6} \text{ m}$ (elektromagnit spektrning turli diapazonlariga mos keladigan to'lqin uzunliklari 2-bobda batafsil muhokama qilinadi).



2-rasm. Vashingtonning LANDSAT sun'iy yo'ldosh tasvirlari.

Rasmda Vashington, D.C. hududi; binolar, yo'llar, o'simliklarning yamoqlari va shahar bo'ylab oqadigan katta Potomak daryosi ko'rinadi. Aholi punktlarining suratlari ko'pincha (va uzoq vaqtdan beri) aholi o'sishini, ifloslanish dinamikasini va atrof-muhitga salbiy ta'sir ko'rsatadigan boshqa omillarni baholash uchun ishlatiladi. Ushbu tasvirlardagi ko'rinadigan va infraqizil tasvirlar o'rtasidagi farq diqqatga sazovordir. Misol uchun, 4 va 5 zonalarga mos keladigan tasvirlarda daryo qirg'oqlari fonida qanchalik yaxshi ajralib turishiga e'tibor

qarataylik. Ob-havoni kuzatish va prognoz qilish ham ko'p zonali sun'iy yo'ldosh tasvirlarining muhim qo'llanilishi hisoblanadi. Misol uchun, 3-rasmda G'arbiy yarimsharda so'nggi vaqtlarda sodir bo'lgan eng halokatli dovullardan biri bo'lgan Katrina to'foni tasviri berilgan. U AQSh Milliy Okeanografiya va Atmosfera Xizmati (NOAA) sun'iy yo'ldoshi tomonidan ko'rinadigan va infraqizil diapazonlarda ishlaydigan sensorlar yordamida qabul qilingan.

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ВНЕДРЕНИЕ ИНФОРМАЦИОННЫХ СИСТЕМ НА ПРЕДПРИЯТИЯХ

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Аннотация: Внедрение информационных систем на предприятиях представляет собой сложный процесс интеграции программного обеспечения в финансово-управленческую деятельность компании. Этот процесс требует от специалистов наличия специальных знаний, соответствующего опыта и особого подхода к реализации проекта.

Ключевые слова: автоматизация, база данных, ERP, CRM, интеграция, обработка данных, хранение данных

Введение: Современный бизнес и его развитие тесно связаны с прогрессом информационных технологий, которые с каждым годом развиваются всё быстрее. Примером может служить электронная почта, без которой сейчас не обходится ни одна сделка, тогда как раньше люди ждали письма от почтальона. Информационные технологии значительно ускорили взаимодействие между бизнес-партнёрами. Появление Интернета привело к возникновению таких понятий, как «транснациональная корпорация» в современном смысле.

Таким образом, можно утверждать, что своевременное освоение информационных технологий и их интеграция в бизнес-процессы (а возможно и создание новых) открывают перед пользователями широкие конкурентные возможности. Однако внедрение новых технологий — процесс непростой, требующий комплекса мер, направленных на модернизацию бизнес-процессов. Этот процесс можно назвать внедрением новой информационной системы на предприятии. Рассмотрим подробнее, что представляет собой такая система и какие факторы могут повлиять на её необходимость.

Сегодня термин «информационная система» редко используется, его заменяет аббревиатура КИС (корпоративная информационная система), особенно в контексте предприятий. В чем же особенность такой системы? Однозначного ответа нет, но все они схожи в одном: КИС — это открытая интегрированная автоматизированная система реального времени, основная задача которой — автоматизация бизнес - процессов фирмы на всех уровнях, включая процессы, связанные с управленческими решениями.

Развитие системы может варьироваться от нескольких локальных компьютеров с локальными операционными системами до сотен

пользователей и тысяч единиц оборудования со специализированным программным обеспечением. Независимо от масштаба, корпоративная информационная система должна соответствовать трем основным требованиям: удобство использования, надежность и защита информации. Помимо этих требований, существуют и другие, так как КИС должна решать широкий спектр задач для обеспечения эффективности.

Вот некоторые из этих задач:

Хранение и обработка информации.

Хранение данных различной структуры.

Анализ и прогнозирование информационных потоков.

Исследование методов хранения и представления информации пользователю.

Поиск информации.

Создание инфраструктуры для хранения и передачи данных.

Для выполнения всех этих условий необходима сложная КИС, которая будет объемной и дорогостоящей. Также важно учитывать наличие квалифицированных сотрудников для поддержания системы. Интеграция такой системы на предприятии возможна только при наличии обоснования, основанного на прогнозах или новых потребностях, если система уже функционировала ранее. Рассмотрим подробнее аспекты, на которые следует обратить внимание при внедрении КИС на вашем предприятии и при возникновении проблем в процессе внедрения. Обоснование необходимости внедрения. Внедрение такой системы как инструмента в бизнесе происходило не сразу, а постепенно. Идея внедрения КИС в организации может возникнуть по разным причинам. Это может быть связано с реорганизацией производства, острой конкурентной борьбой или другими факторами.

Сдерживающие силы. Предприятие, как живой организм, реагирует на любые изменения, будь то внешние или внутренние. Обычно такие изменения вызывают сопротивление. Однако это сопротивление не всегда связано с личным неприятием сотрудников и руководителей или организационными сложностями, которые могут составлять значительную часть проблем на этапе внедрения. Часто причиной может быть отсутствие технической возможности модернизации, включая устаревшую техническую базу (IT-инфраструктуру), финансовые проблемы или сложность адаптации существующих бизнес-процессов.

Конфликтные ситуации могут замедлить внедрение информационной системы, поэтому их следует решать оперативно. После принятия решения о внедрении и завершения подготовительных процедур не стоит останавливаться. Технические и финансовые проблемы можно решить

увеличением финансирования, но трудности с персоналом требуют индивидуального подхода. В таких случаях часто вовлекают сопротивляющихся сотрудников в процесс внедрения и обучают их новым навыкам, что способствует повышению их квалификации. Внедрение корпоративной информационной системы (КИС) можно условно разделить на четыре этапа:

1. Подготовка: На этом этапе формулируются предстоящие изменения и уведомляются сотрудники, которых они коснутся. Также проводится анализ всех факторов, которые могут препятствовать внедрению.

2. "Разморозка": Этот этап включает подготовку сотрудников к изменениям и разработку мер, которые помогут им принять нововведения с минимальными трудностями.

3. Внедрение: Сотрудники, ответственные за введение КИС, осуществляют все запланированные изменения в соответствии с графиком.

4. "Замораживание": На этом этапе закрепляются все внесенные изменения, возвращая систему организации в новое стабильное состояние.

Эти этапы могут повторяться несколько раз до достижения положительных результатов.

Заключение: Игнорировать развитие современных информационных технологий невозможно, так как они приводят к усложнению внедряемых систем, которые включают в себя как технические новшества, так и новые подходы к ведению бизнеса². Это подчеркивает, что в настоящее время наличие информационной системы на предприятии является необходимостью. Без нее организация рискует утратить конкурентоспособность и даже исчезнуть с рынка. Однако, успешное внедрение информационных систем требует тщательной подготовки и планирования. Важно учитывать специфику бизнеса, выбирать подходящие технологии и инструменты, а также обеспечивать обучение и поддержку сотрудников.

В целом, внедрение информационных систем является стратегическим шагом, который может значительно улучшить работу организации и обеспечить ее устойчивое развитие в долгосрочной перспективе.

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INSONLARNI OVOZ ORQALI IDENTIFIKATSIYALASH VA AUTENTIFIKATSIYALASH

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Annotatsiya. Zamonaviy texnologiyalar insonlarning xavfsizligi va ma'lumotlarga kirishni nazorat qilish ehtiyojlaridan kelib chiqib, ko'plab biometrik usullarni rivojlantirdi. Ovoz orqali identifikatsiyalash va autentifikatsiyalash (speaker recognition) ham shunday texnologiyalardan biri bo'lib, odamning ovozi unikalik sifatida foydalanib, uni boshqa odamlar orasidan aniqlash yoki tasdiqlash imkonini beradi. Ushbu texnologiya turli sohalarda, jumladan, bank, telekommunikatsiya va xavfsizlik tizimlarida keng qo'llaniladi.

Kalit so'zlar: *Ovoz identifikatsiyasi, autentifikatsiya, Ovozning biometrik xususiyatlari, Ovoz tahlili, Ovozning o'zgaruvchanligi.*

Ovoz identifikatsiyasi – bu jarayonda shaxs ovozi asosida boshqa shaxslardan ajratiladi va uning kimligi aniqlanadi. Identifikatsiya tizimlari shaxsning ovozi avvaldan mavjud ma'lumotlar bilan taqqoslab, mos keluvchi ovozi izlaydi.

Ovoz orqali autentifikatsiya – bu texnologiya foydalanuvchi ma'lumotlariga kirishni tasdiqlash uchun ishlatiladi. Bu jarayonda shaxs o'z ovozi orqali tizimda oldindan ro'yxatdan o'tganligini tasdiqlaydi.

Ovozning biometrik xususiyatlari – ovoz orqali identifikatsiya va autentifikatsiya qilishning asosi. Bu xususiyatlar:

- Ovoz ohangi (pitch)
- Yuqori chastota (formant)
- So'zlash uslubi (tempo, ritm)
- Fonetik xususiyatlar (undosh va unli tovushlar talaffuzi).

Texnologiyaning ishlash tamoyillari

Ovoz namunasini yig'ish: foydalanuvchi ovozi tizimga kiritiladi va ovoz namunasi saqlanadi.

Ovoz tahlili: tizim yig'ilgan ovozning biometrik xususiyatlarini chiqarib oladi va uni shablon sifatida saqlaydi. Bu jarayonda texnologiya Fourier transformatsiyasi, Mel chastota kepsstral koeffitsiyentlari (MFCC) kabi signalni tahlil qilish usullaridan foydalanadi.

Ovoz moslashtirish va solishtirish: yangi kiritilgan ovoz namunasi saqlangan shablon bilan solishtiriladi va mos kelish darajasi aniqlanadi. Agar moslik

belgilangan darajadan yuqori bo'lsa, foydalanuvchi tasdiqlanadi yoki identifikatsiya qilinadi.

Xavfsizlik tizimlari: Ovoz orqali autentifikatsiyalash banklar, davlat idoralari va telekommunikatsiya kompaniyalarida keng qo'llaniladi. Foydalanuvchilar ovoz yordamida ma'lumotlarga tez va qulay kirish imkoniyatiga ega.

Kundalik hayotda qo'llanilishi: Mobil telefonlar va "aqlli" uy tizimlari ovoz orqali boshqariladigan texnologiyalardan foydalanadi. Misol uchun, virtual yordamchilar ovoz orqali qo'mondonliklarni qabul qiladi.

Afzalliklar:

- Foydalanish qulayligi: Parol yoki kartalar kabi alohida vositalar talab etilmaydi.

- Yuksak xavfsizlik: Ovoz individual xususiyatlarga ega bo'lganligi uchun uni soxtalashtirish qiyin.

Kamchiliklar va cheklovlar

- Ovozda o'zgarishlar: Ovoz salomatlik holati, yosh, va atrof-muhit sharoitlariga bog'liq holda o'zgarishi mumkin. Bu tizimning aniq ishlashiga ta'sir ko'rsatishi mumkin.

- Xavfsizlik tahlikalari: Ovoz yozuvlarini soxtalashtirish imkoniyatlari mavjud, bu esa tizimning zaif tomonlaridan biri hisoblanadi.

Ovoz orqali identifikatsiyalash va autentifikatsiyalash texnologiyalari xavfsizlik va qulaylikni birlashtirgan zamonaviy biometrik usul hisoblanadi. Ushbu texnologiyalar shaxsning ovozini noyob biometrik xususiyat sifatida ishlatib, turli ilovalarda qo'llanilishi mumkin. Biroq, ovozda o'zgarishlar va xavfsizlikka tahdidlar bu texnologiyalarning yanada rivojlantirilishini talab qiladi.

Muammolar va yechimlar

Ovozning o'zgaruvchanligi: Inson ovozi vaqt o'tishi bilan o'zgarishi mumkin. Masalan, yoshga qarab ovoz ohangi pasayishi, stress, kasallik, yoki shovqinli muhit ovozni o'zgartirishi mumkin. Bu identifikatsiya va autentifikatsiya tizimlarining ishonchligini pasaytiradi.

Tizimlarni ovozda vaqtinchalik o'zgarishlarga moslashuvchan qilib loyihalash lozim. Ovozning barqaror xususiyatlarini aniqlash uchun chuqur o'rganish (deep learning) va neyron tarmoqlardan foydalanish orqali tizimlar yangilanib borishi mumkin.

Shovqinli muhit: Ovoz orqali autentifikatsiya qilishda atrofdagi shovqinlar, masalan, transportda, ko'chada yoki jamoat joylarida ovozning aniqligini pasaytiradi. Buning natijasida tizim noto'g'ri identifikatsiya qilishi yoki autentifikatsiya muvaffaqiyatsiz bo'lishi mumkin.

Shovqinlarni filtrlaydigan ilg'or ovoz ishlov berish algoritmlarini joriy qilish zarur. Mel chastota keprstral koefitsiyentlari (MFCC) yoki boshqa ovoz xususiyatlarini ekstraksiya qilish usullari shovqinli muhitda ham ishonchli ishlash imkoniyatini ta'minlashi mumkin. Shuningdek, mikrofonlar va boshqa kiritish vositalarining sezgirligini oshirish ham yechim bo'lishi mumkin.

Ovoz yozuvlarini yoki sintetizatsiya qilingan ovozni ishlatib, autentifikatsiya tizimlarini aldashga urinishlar (spoofing attacks) xavfi mavjud. So'nggi yillarda ovozli hujumlar va tovushlar asosida soxtalashtirish texnologiyalari (deepfake) rivojlanib, xavfsizlikka jiddiy tahdid solmoqda.

Liveness detection (tirik ovozni aniqlash) texnologiyalarini joriy qilish zarur. Bu texnologiya foydalanuvchidan real vaqt rejimida ovozda o'zgaruvchan va jonli xususiyatlarni aniqlaydi, shu bilan birga soxta yozuvlarni aniqlash imkonini beradi. Hozirgi kunda neyron tarmoqlar asosida chuqur tahlil qilish usullari bu tahdidlarni kamaytirishga yordam bermoqda.

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REZERVUARLARDAGI NEFT MAHSULOTLARINING O'ZGARUVCHI PARAMETRLARINI AVTOMATIK QURILMA YORDAMIDA O'LGHASH VA MATEMATIK TAHLILI

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Annotatsiya. *Ushbu maqolada neft mahsulotlarining tashqi temperatura bilan (t) moddaning protsentli tarkiblari x_1 va x_2 orasidagi bog'lanishning matematik modeli ishlab chiqilgan. Avtomatik qurilma orqali o'lchangan eksperment natijalari kichik kvadratlar metodi orqal hisoblaning soddalashtirish maqsadida Q_x , Q_y , Q_{xy} , - kattaliklari kiritildi. Chiziqli regressiya elementlari orqali β_0 , β_1 va β_2 – parametrlar hisoblanib neft mahsulotlarini fizik-kimyoviy xossalari $Y = 14,186 - 2,041x_1 - 0,530x_2$ matematik taxli qilindi.*

Kalit so'zlari: *neft mahsulotlari, harorat, rezervuar, modifikatsiya, interval, regressiya.*

Suyuqliklarning fizik ximik xossalari vaqt o'tishi bilan temperaturaning o'zgarishi natijasida, tarkibi (modifikatsiya) keskin o'zgarishi mumkin. Masalan neft mahsulotlarining yonuvchanligi solishtirma issiqlik sig'imi, bosimga nisbatan siquvchanligi umumiy holalarda aytilgan bo'lsa ilmiy jihatdan esa, har bir temperaturada, unga mos modifikatsiyalar hosil bo'ladi. Bu degani neftning yangi mahsulotlari hosil bo'lganligini dalolatdir. Neft mahsulotlarining haroratga nisbatan tez o'zgaruvchanligi, hajmining oshishi yoki kamayishi yangi mahsulot (modifikatsiya)lar hosil bo'lishiga sabab bo'ladi. Tashqi harorat neft mahsulotlariga shu darajada ta'sir etadiki, xato past temperaturalarda tunglashga olib kelib, yonilg'ini siqiluvchanligi butunlay o'zgaradi. Yuqori temperaturalarda esa bug'lanish hodisasi ro'y berib gazsimon modifikatsiyalar hosil bo'lib, yonilg'ining miqdorini kamayishiga olib keladi [1]. Bir so'z bilan aytilganda har bir temperaturaga o'ziga xos modifikatsiyali mahsulotlar hosil bo'ladi. Idish va rezervuarlarda vaqt o'tishi natijasida neft mahsulotlarning sifati juda tez o'zgaradi. Shu sababli yillar davomida rezervuarda saqlanayotgan neft mahsulotlarini doimiy ravishda temperaturasini, hajmini, solishtirma sig'imini o'lchash talab etiladi. Bu

vazifani inson yordamida bajarish katta mablag' talab etiladi. Shu sababli idishlarga avtomatik qurilmalar o'rnatilib olingan natijalardan variantalar qatori hosil qilinadi. Masalan: rezervuar (obyekt)dagi neft mahsulotining temperatura (harorat)sining o'zgarishi uning issiqlik tashuvchi A-komponentlarining protsentli miqdori x_1 va tevarak atrofning harorati x_2 ga bog'liqligini regressiya to'plamlar chizig'ini topish muhim. Yuzlab ilmiy tadqiqot natijalaridan tanlanma hosil qilinib 1-jadval ko'rinishga keltirildi (n=11) [2].

1-jadval

x_i °C	6	8	1	0	5	3	2	-4	10	-3	5
x_1 %	1	4	9	11	3	8	5	10	2	7	6
x_2 %	8	2	-8	-10	6	-6	0	-12	4	-2	-4

1-jadval natijalaridan ko'rinadiki, x_1 va x_2 parametrlarning temperaturaga bog'liq ravishda o'zgarishi (o'zaro bog'liq emas) bir xil emas. Shu sababli ularni o'zaro bog'liqligini ifodalovchi β_0 , β_1 va β_2 parametrlar orqali Y temperatura funksiyasini hosil qilamiz. Buning uchun to'plamlarning chiziqli regressiya usulidan foydalanamiz. YA'ni ikkita bog'liq bo'lmagan o'zgaruvchilarni o'zaro bog'lanishni quyidagi model orqali tasavvur qilamiz.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 \quad (1)$$

Shuningdek, Y hamda x_1 va x_2 o'zgaruvchilar orasidagi o'zaro bog'lanish formulasini hosil qilamiz, ishonchlilik intervallar (oralig'larini) aniqlaymiz. x_1 va x_2 hamda Y to'plamlar orasidagi korrelyatsiya koeffitsentini hisoblashimiz talab etiladi.

Quyidagilarni hisoblaymiz

$$\sum x_{1i} = 66, \quad \sum x_{2i} = -22 \quad \sum y_i = 33 \quad \sum x_{1i}^2 = 506$$

$$\sum x_{2i}^2 = 484 \quad \sum y_i^2 = 289 \quad \sum x_{2i} x_{1i} = -316$$

$$\sum y_i x_i = 85, \quad \sum y_i x_i = 142, \quad \bar{y} = 3, \quad \bar{x}_1 = 6, \quad \bar{x}_2 = -2$$

Har bir o'zgaruvchi uchun kuzatilgan ilmiy tadqiqot natijalarni yig'indisi va kvadrlarining yig'indisi hamda o'rtacha arifmetik qiymatlari kichik kvadratlar metodi orqali berilgan bo'lib ifodani soddalashtirish maqsadida mos ravishda Q_y , Q_{x_1} , Q_{x_2} , $Q_{x_2 y_1}$ va $Q_{x_1 x_2}$ belgilanishlar orqali ifodalaymiz va quyidagi formulalar asosida ifodalaymiz.

$$Q_y = \sum y_i^2 - \frac{(\sum y_1)^2}{n} = 289 - \frac{33^2}{11} = 190$$

$$Q_{x_1} = \sum x_{1i}^2 - \frac{(\sum x_1)^2}{n} = 506 - \frac{66^2}{11} = 110$$

$$Q_{x_1x_2} = \sum x_{1i}y_i - \frac{\sum x_{1i} \sum x_{2i}}{n} = -346 - \frac{66 \cdot (-22)}{11} = -214$$

$$Q_{x_1y} = \sum x_{1i}y_i - \frac{\sum x_{1i} \sum y_i}{n} = 85 - \frac{66 \cdot 33}{11} = -113$$

$$Q_{x_2y} = \sum x_{2i}y_i - \frac{\sum x_{2i} \sum y_i}{n} = 142 - \frac{33 \cdot (-22)}{11} = 208$$

$$Q_{x_2} = \sum x_{2i}^2 - \frac{(\sum x_2)^2}{n} = 484 - \frac{(-22)^2}{11} = 440$$

Yuqoridagilarni hisobga olib matritsalarini hosil qilamiz va ularni hisoblaymiz.

$$A^T A = \begin{pmatrix} Q_{x_1} & Q_{x_1x_2} \\ Q_{x_1x_2} & Q_{x_2} \end{pmatrix} = \begin{pmatrix} 110 & -214 \\ -214 & 440 \end{pmatrix}$$

Bunda ikkinchi tartibli kvadrat ditermenat tuzamiz va hisoblaymiz, u holda

$$|A^T A| = |-2604| = 2604$$

$(A^T A)^{-1}$ teskari matritsani hisoblaymiz

$$(A^T A)^{-1} = \frac{1}{2604} \begin{pmatrix} 440 & 214 \\ 214 & 110 \end{pmatrix} \approx \begin{pmatrix} 0,169 & 0,082 \\ 0,082 & 0,042 \end{pmatrix}$$

Bundan

$$A^T y = \begin{pmatrix} -113 \\ 208 \end{pmatrix} \cdot \begin{pmatrix} 0,169 & 0,082 \\ 0,082 & 0,042 \end{pmatrix} \approx \begin{pmatrix} -2,041 \\ -0,530 \end{pmatrix}$$

Oxirgi natijadan β_0 parametrga baho beriladi va quyidagi formula orqali hisoblanadi. $\beta_1 = -2,041$ $\beta_2 = -0,530$

$$\bar{\beta} = \begin{pmatrix} \beta_1 \\ \beta_2 \end{pmatrix} \approx \begin{pmatrix} -2,041 \\ -0,530 \end{pmatrix}$$

$$\beta_0 = \bar{y} - \bar{\beta}_1 \bar{x}_1 - \bar{\beta}_2 \bar{x}_2 = 3 - (-2,041) \cdot 6 - (-0,530) \cdot (-2) = 14,186$$

U holda yassi regressiya quyidagi tenglama bilan ifodalanadi:

$$Y = 14,186 - 2,041x_1 - 0,530x_2$$

β_1 va β_2 parametrlar uchun ishonchlilik intervallarini qoldiq kvadratlar yig'indisi formulasi orqali topamiz.

$$Q_T = Q_y - \beta^T A^T y = 190 - (-2,041) \cdot (-0,530) \cdot \begin{pmatrix} -113 \\ 208 \end{pmatrix} = 69,607$$

Endi tajriba (kuzatish)larni xatoligining dispersiyasini hisoblaylik

$$S_0^2 = \frac{Q_T}{n-3} = \frac{69,607}{11-3} \approx 8,7$$

bunda

S_0^2 – tajriba xatoligining dispersiyasi

Q_T – esa tajriba natijalarini yig'indi va kvadrat yig'indisini ifodalovchi kattaliklar.

U holda o'rtacha kvadratik chetlanish esa $S_0 = \sqrt{\frac{Q_T}{n-2}} = \sqrt{8,7} = 2,95$ teng ekan.

Jadval P-6 dan $t_{0,95}(8) = 1,860$

Styudentning $t_p(x)$ kvantili taqsimotidan $t_{0,450}(8) = 1,860$ ekanligi topildi [2].

Ishonchlilik interval chetlanishlari β_1 va β_2 uchun quyidagi formuladan topiladi.

$$\bar{\rho}_i \pm t_{1-\frac{\alpha}{2}}(n-3)S_0\sqrt{a_{ij}}$$

bunda

$\alpha = 1, 2, 3$ bo'lib, a_{ij} matritsa diagonal elementi hisoblanadi.

$$-2,041 \pm 1,860 \cdot 2,95\sqrt{0,169} \approx -2,041 \pm 0,922$$

β_1 parametrlarning ishonchlilik intervallari (-2,968; -1,110). Shuningdek, β_2 параметр $-0,53 \pm 1,86 \cdot 2,95\sqrt{0,042} \approx -0,53 \pm 1,124$ oraliq intervali (-1,654; 0,594) oraliq intervalida yotadi. Korrelyatsiya koeffitsentni quyidagi formula orqali hisoblanadi.

$$R = \sqrt{\frac{\beta^T A^T Y}{Q_y}} = \sqrt{\frac{120,393}{190}} \approx 0,796$$

Xulosa qilib shuni aytish joizki, neft mahsulotlarining o'zgaruvchi parametrlari x_1 va x_2 ni Y (°C) temperatura ta'sirida keskin o'zgarrishining matematik moduli ishlab chiqildi. Ya'ni β_0 , β_1 va β_2 parametrlarini bog'lanish chiziqli regressiya moduli hosil qilindi. Neft mahsulotlari fizik usul bilan yoki kimyoviy (krekin) yo'li bilan oddiy moddalarga aylantiriladi [3]. Tarkibida uglerod miqdori yuqori bo'lgan (qora neft) neft mahsulotlari temperaturasining ortishi (nazoratga olgan holda) natijasida rangsiz, rangli va moylash materiallari hosil bo'ladi, Y (°C) ikkita har xil protsentli o'zgaruvchilar x_1 va x_2 komponentlarini bog'laydigan (yangi modifikatsiyali) moddalarning hosil bo'lishi molekulyar formulasi bir xil, lekin fizikaviy, kimyoviy xossalari farqli elementlar hosil bo'lishining $Y(t) = \beta_0 + p_1x_1 + p_2x_2$ matematik modeli hosil qilindi [4]. Shu bilan birgalikda hosil bo'lgan moddalarning ishonchlilik intervallari ham

aniqlandi. Ishonchlilik interval (oraliq) dan tashqari oraliqlarda moddalar ya'ni oldingi holatlariga qaytishi mumkin. Bu hodisa esa kimyo fanidagi qaytaruvchi reaksiya yordamida tushuntiriladi.

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CYBERSECURITY ISSUES IN IOT DEVICES

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Abstract: *This paper provides an in-depth analysis of the interconnectivity and data exchange inherent in Internet of Things (IoT) systems, as well as their diverse applications across various sectors, including healthcare, transportation, industry, and smart homes. The rapid advancement of IoT technologies has brought cybersecurity concerns to the forefront of discourse, highlighting the vulnerabilities that accompany this interconnected landscape. A single compromised IoT device has the potential to undermine the security of an entire system, thereby exposing users to significant risks, including the theft or manipulation of sensitive personal information. In response to these challenges, this work explores the necessity of implementing robust security measures within IoT devices. Specifically, it proposes the use of cryptographic encryption and*

hashing algorithms as effective strategies to safeguard data integrity and confidentiality.

Keywords: *Internet of Things, encryption algorithm, hash, security.*

Introduction

The Internet of Things (IoT) refers to the interconnectivity and data exchange between various devices, sensors, and software through a global network. IoT systems are widely utilized in various sectors, including homes, industry, transportation, and healthcare. They have the potential to simplify our lives, ensure efficient resource utilization, and create new services. However, IoT devices also introduce numerous risks and challenges[1].

In recent years, the rapid development of IoT technologies has brought cyber security issues to the forefront. The expansion of network architectures and the increasing number of interconnected devices create new opportunities for attackers. For instance, a single vulnerable IoT device can jeopardize the security of an entire system. Additionally, serious problems such as the theft or manipulation of users' personal information are emerging. Therefore, it is crucial to identify IoT security issues, assess threats, and develop effective solutions.

IoT can be classified based on its applications and functions into various types. Common categories of IoT devices include Smart Home, Wearable Devices, Industrial Automation, Monitoring and Control, Transportation and Traffic Management, Smart Streetlights, Medical Equipment, Agricultural Monitoring, Smart Retail, and Smart Grid. Each of these types serves specific purposes and plays a significant role in enhancing efficiency and connectivity in their respective domains.

These IoT devices are designed to enhance our lives and improve efficiency through modern technologies. Each category offers unique capabilities and research areas. Threats to IoT security can be analyzed by dividing them into several major segments[2-3].

Physical Threats. Theft or destruction of devices.

Network Threats. DDoS attacks, packet interception.

Software Vulnerabilities. Weak passwords, lack of updates.

Data Protection. Encryption, authentication.

Common strategies employed to ensure IoT security include.

Device Security: Implementing strong authentication and passwords.

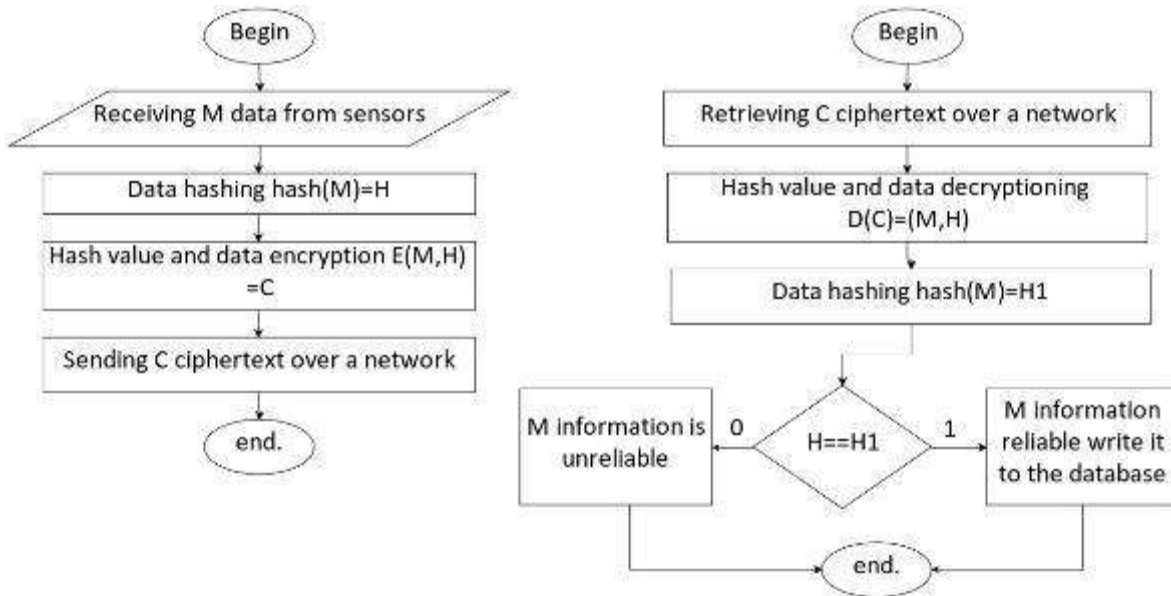
Data Encryption: Encrypting data during transmission and storage.

Updates: Regularly updating software.

Security Policies: Establishing security protocols and compliance documents for organizations.

Encryption plays a crucial role in securing data within IoT devices. Therefore, we explored the use of encryption algorithms and hash functions to enhance data security in IoT devices. The schematic representation of the algorithm is illustrated in Figure 1 below.

Figure 1. Schematic Representation of Secure Data Transmission over an



Open Network

As an encryption algorithm, any symmetric encryption method can be selected. However, when choosing an encryption algorithm, it is advisable to consider its speed and the device's capability for implementation. Similarly, the hash function should be selected based on its efficiency and compatibility with the device. For instance, the AES encryption algorithm can be utilized for encryption, while a hash function from the SHA family can be used for hashing.

Conclusion

These algorithms serve as effective tools for enhancing security and protecting data within IoT systems. Considering the advantages and disadvantages of each algorithm aids in selecting the most suitable solution for specific systems and scenarios. This careful evaluation ensures that the chosen approach aligns with the security requirements and operational constraints of the IoT environment.

In the work, the discussion focuses on ensuring cryptographic security based on encryption and hash algorithms for IoT systems. It is emphasized that considering speed and the capabilities of the device is important when selecting encryption methods.

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AXBOROTNI HIMOYALASHDA AGENTGA YO‘NALTIRILGAN YONDASHUVDAN FOYDALANISH

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***Annotatsiya:** mazkur ishda taqsimlangan tizimlarni boshqarish va nazorat etishga muljallangan agentga yo‘naltirilgan yondashuv haqida suz yuritiladi. Agentga yo‘naltirilgan yondashuvning asosiy tushunchalari, agentning ishlash tamoyillari va intellektual agentlar taxlil kilingan. Bundan tashkari ko‘p agentli tizimlar, ularning ishlash asoslari va kullash sohalari haqida tavsiyalar berilgan.*

***Kalit so‘zlar:** agent, intellektual agent, muhit, bazaviy bilim, avtonomlik, ijtimoiy fe‘l-atvor,*

Kirish: So‘nggi yillarda mutaxassislarning katta e‘tiborini axborotni himoyalash tizimlarini intellektuallashtirish bilan bog‘liq yo‘nalishlar, ya‘ni, uzlarining kasbiy bilim va tajribalarini jalb etib, odatda yuqori malakali operator (mutaxassis) bajaradigan vazifalarni berish bilan bog‘liq yo‘nalishlar uziga jalb etmokda. Ushbu funksiyalarni bajarish jarayonida u hal qiladigan vazifalar sun‘iy intellekt usullarini o‘rganish va qo‘llash predmeti bo‘lgan yomon formallashtirilgan (tizimlashtirilmagan) vazifalar sinfiga kiradi.

Sun‘iy intellektni tadqiq qilish sohasi juda keng va quyidagi yo‘nalishlarni/usullarni qamrab oladi:

sun‘iy neyron tarmoqlari;

noravshan mantiqqa asoslangan tizimlar;

genetik algoritmlar ;

ekspert tizimlari ;

ko‘p agentli tizimlar;

sun‘iy immunitet tizimlari.

Murakkab kompyuter va tashkiliy-texnik tizimlarni yaratishda keng tarqalgan agentga yo‘naltirilgan yondashuv (AYE) ning kelib chiqishi utgan

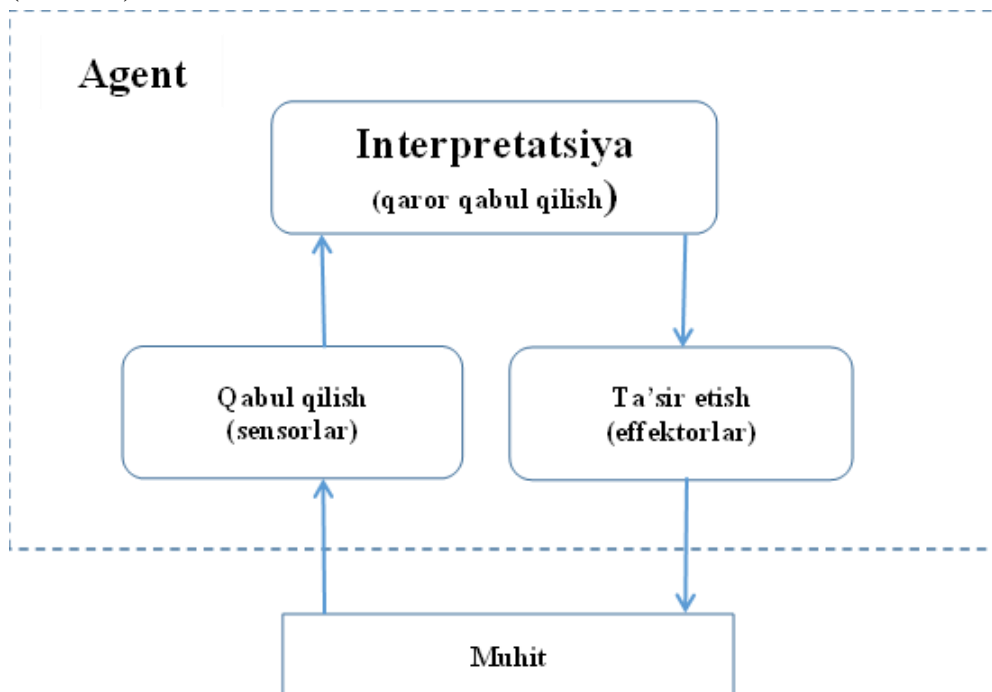
asrning 80-yillarga to'g'ri keladi. Ushbu yondashuv quyidagi asosiy tushunchalarga asoslanadi:

- agent;
- intelektual agent;
- ko'p agentli tizim;
- ko'p agentli texnologiyalar.

Bugungi kunda ko'plab mahalliy va xorijiy universitetlar va tadqiqot markazlarida ko'p agentli tizimlarning formal nazariyasini qurish sohasida ham, muayyan amaliy muammolarni hal qilishda ko'p agentli texnologiyalarni amaliy qo'llash nuqtai nazaridan ham ishlar olib borilmoqda. Ushbu ishlarni muvofiqlashtirish, shu jumladan ko'p agentli tizimlar va texnologiyalar sohasida tegishli standartlarni ishlab chiqish FIPA (Foundation for Intelligent Physical Agents), xalqaro tashkiloti homiyligida amalga oshiriladi.

Agentga yo'naltirilgan yondashuv

Zamonaviy mulohazalarga ko'ra, agent - bu qandaydir tashqi muhitda joylashgan narsa bo'lib, u yerda sodir bo'layotgan hodisalarni aks ettiruvchi ma'lumotlarni oladi, ularni faxmlaydi va shu muhitga ta'sir qiluvchi buyruqlarni shakllantiradi. Shunday qilib, "agent" tushunchasini aniqlashda agentni shakllantiruvchi to'rtta omil ishtirok etadi: muhit, idrok, talqin qilish, harakat qilish (1-rasm).



1-rasm. Agentning soddalashtirilgan tuzilmasi

Taxminlarga ko'ra, agentning o'ziga xos fe'l-atvoriga ega, dinamik o'zgaruvchan tashqi muhit bilan o'zaro ta'sir qiladi, o'zi esa, o'z navbatida, boshqa

agentlar ta'siri ostida yoki boshqa sabablarga ko'ra o'zgaradi. Ushbu o'zaro ta'sir quyidagilarni nazarda tutadi:

muhit dinamikasini idrok etish (sensorlar to'plami orqali);

- muhit holatini o'zgartiruvchi harakatlar (ma'lum effektorlar yordamida);

zarur harakatlar to'g'risida xulosalar chiqarish va qarorlar qabul qilish uchun muhitda sodir bo'layotgan faktlar (hodisalar)ni faxmlab olish.

Agentning eng asosiy xususiyatlaridan biri uning intellektualligidir. Intellektual agent o'zi va atrof-muhit haqida ma'lum bilimlarga ega va shu bilimlar asosida u o'z xatti-harakatlarini aniqlay oladi.

Intellektual agentning ikki ta'rifini farqlash o'rinlidir - "zaif" va "kuchli". Zaif ma'noda intellektual agent deganda quyidagi xususiyatlarga ega bo'lgan dasturiy yoki apparatli amalga oshirilgan narsa (tizim) tushuniladi (2-rasm) [1]:

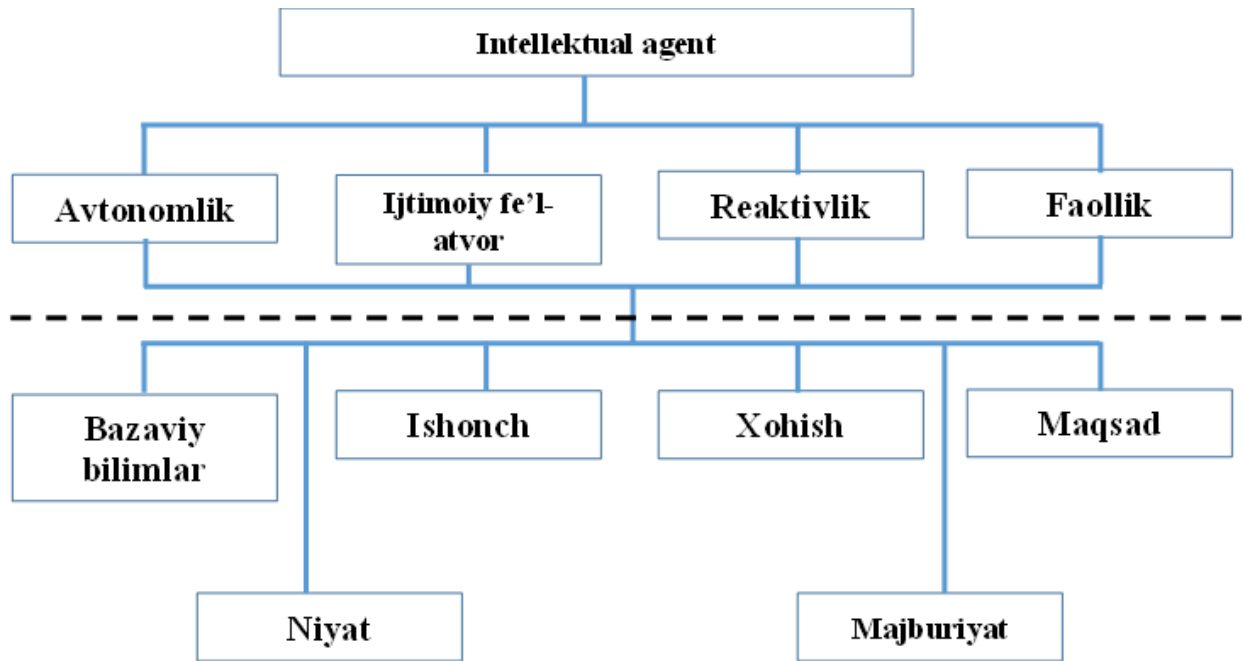
- avtonomlik - o'z harakatlari va ichki holatini o'z-o'zini nazorat qilish bilan maqsad va ishlashini mustaqil ravishda shakllantirish qobiliyati;

- ijtimoiy fe'l -atvor - muloqot tilida xabar almashish orqali o'z xatti-harakatlarini boshqa agentlarning xatti-harakatlari va xatti-harakatlar qoidalari bilan muayyan muhitda muvofiqlashtirish qobiliyati;

- reaktivlik - tashqi muhit holatini (ishlash muhiti va boshqa ko'plab boshqa agentlar) idrok etishga moslashish va sodir bulayotgan o'zgarishlarga o'z vaqtida javob berish qobiliyati;

- faollik - tashabbus ko'rsatish qobiliyati, ya'ni nafaqat tashqi hodisalarga passiv munosabatda bo'lish, balki mustaqil ravishda maqsadni shakllantirish va ularga erishish uchun oqilona harakat qilish.

Intellektual agentning kuchli ma'nodagi ta'rif(qoidasi) bir qator qo'shimcha (mental) xususiyatlarga ega bo'lishini nazarda tutadi:



2-rasm. Intellektual agentning xususiyatlari

- bazaviy bilim – o‘zi va muhit haqidagi bilimlarning doimiy qismi, shuningdek, agentning hayot sikli ramkasida o‘zgaraydigan boshqa agentlar haqida doimiy bilim;

- e‘tiqod - agentning muhit va boshqa agentlar haqidagi bilimlarining o‘zgaruvchan qismi bulib, vaqt o‘tishi bilan o‘zgarishi mumkin, ammo agent bu haqda bilmasligi va ulardan o‘z maqsadlari uchun foydalanishda davom etishi mumkin;

istak - erishilgan holatlar va/yoki vaziyatlar

maqsad-holatlar to‘plami, unga erishish uchun agentning joriy fe‘l-atvori yo‘naltirilgan buladi;

niyat - agentning boshqa agentlarga nisbatan o‘z majburiyatlari tufayli nima qilishi kerakligi yoki uning xohishlaridan kelib chiqadigan narsa (ya‘ni, u yoki bu sabablarga ko‘ra tanlangan va qabul qilingan majburiyatlarga mos keladigan istaklarning izchil to‘plami);

majburiyatlar - boshqa agentlarning iltimosiga va/yoki ko‘rsatmasiga binoan agent o‘z zimmasiga oladigan vazifalar.

Ko‘p agentli tizim (KAT) deganda bir-biri va atrof-muhit bilan o‘zaro aloqada bo‘lishga va ushbu agentlarning hech biri hal qila olmaydigan muammolarni birgalikda hal qilish uchun o‘z faoliyatini muvofiqlashtirishga qodir bo‘lgan dasturiy ta‘minot va apparat vositalarining o‘zaro bog‘langan agentlari to‘plami tushuniladi.

Agentga yo‘naltirilgan yondashuv obyektga yo‘naltirilgan dasturlashning xususiy holati hisoblanadi. Obyektga yo‘naltirilgan dasturlashda hisoblash jarayoni

deganda bir-biri bilan xabarlar orqali o'zaro ta'sir qiluvchi obyektlardan qurilgan tizim tushuniladi. Agentga yo'naltirilgan yondashuv har biri ma'lum qoidalarga bo'ysunadigan e'tiqodlar, istaklar, qobiliyatlar va shunga o'xshash tarkibiy qismlardan tashkil topgan obyektlar (agentlar)ning ruhiy holati deb ataladigan holatni o'rnatish orqali ushbu tushunchalarni ixtisoslashtiradi. Bu holda hisoblash jarayoni agentlarni xabardor qilish, hamkorlik (agentlar o'rtasida bilim taqsimiganda) yoki raqobat (bilim taqsimlanmaganda) tamoyillari asosida umumiy maqsadga erishish bo'yicha ularning talablari va takliflarini bajarish/yoki rad etishdan iborat.

Obyektdan farqli o'laroq, agent o'z zimmasiga ma'lum majburiyatlarni olishi mumkin (ya'ni, boshqa agent yoki foydalanuvchining kursatmasini bajarish) yoki aksincha, biror-bir vakolatning yetishmasligi, boshqa vazifa bilan bandligi va hokazolarni kursatib, qandaydir ishni bajarishdan bosh tortishi ham mumkin. Shu bilan birga, agent boshqa agentlarni yaratish, bostirish va almashtirish, funksiyalarni faollashtirish (ham o'zining, ham boshqa agentlarning), faoliyat ssenariysini faollashtirish, boshqa agentlarning hozirgi holatini eslab qolish va boshqalar kabi harakatlarni bajarishi mumkin.

UNIX oilasining operatsion tizimlarida bitta kompyuter yoki mahalliy tarmoq doirasida xarakterlanuvchi intellektual agent demon, Windows oilasida u xizmat (servis) deb ataladi.

Ko'p agentli tizim quyidagi o'ziga xos xususiyatlar bilan tavsiflanadi [2]:

har bir agent yetarlicha bo'lmagan ma'lumotlar va "o'z" (shaxsiy) muammosini hal qilish uchun cheklangan imkoniyatlarga ega. U muhit haqida cheklangan ma'lumotlarga va ushbu muhitning o'ziga xos modeliga (muhitga o'ziga xos "nigox")ga ega;

ko'plab agentlarning global boshqaruvi cheklangan yoki umuman yo'q;

agentlar tomonidan foydalaniladigan ma'lumotlar bazalari taksimlangan va ma'lumotlarning bir qismi fakat alohida agentlarga tegishli hisoblanadi;

agentlar asinxron rejimda ishlaydi;

agentlar yuqori sathdagi tilda xabar almashish orqali o'z harakatlarini muvofiqlashtiradi.

KAT qurishning yuqoridagi uziga xos xususiyatlari ulardan foydalanishning kuyidagi afzalliklarini aniqlaydi:

unumdorlik va samaradorlikni oshirish (hisoblashlarni parallelligi va ishlashning asinxronligi evaziga);

ishonchliligi va nosozliklarga bardoshlilikini oshirish (bir yoki bir nechta agentlarning ishdan chiqishida tizimning silliq degradatsiyasi);

ko'lamining va moslashuvchanligining kengayishi (zarur bo'lganda yangi agentlarni qo'shish imkoniyati, tarmoq konfiguratsiyasidagi har qanday o'zgarishlarga moslashish va boshqalar);

narxni pasaytirish (agentga yunaltirilgan arxitektura bilan bog'liq hisoblashlar va kommunikatsiyalar xarajatlari, markazlashtirilgan arxitekturaga nisbatan ancha past).

Hozirgi vaqtda ko'p agentli texnologiyalarni amaliy qo'llash doirasi sezilarli darajada kengaydi, jumladan:

transport oqimini boshqarish (havo harakati, shahar transporti);

murakkab energetik komplekslarini boshqarish;

yirik tashkilotlarni boshqarish;

elektron tijorat tizimlari;

elektron kutubxonalar;

axborot-qidiruv tizimlari (qidiruv robotlari) va boshqalar.

Xulosa

Xulosa sifatida ta'kidlash lozimki, axborot xavfsizligi muammolarini hal qilishda ko'p agentli texnologiyalaridan foydalanish hozirgi kunda istiqbolli samarali yo'nalishlaridan biri bo'lib qolmoqda.

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SUN'IY INTELLEKT YORDAMIDA TIBBIY TASVIRLARNI TAHLIL QILISH

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Annotatsiya: Sun'iy intellekt (AI) zamonaviy tibbiyotning ajralmas qismiga aylanib bormoqda, ayniqsa tibbiy tasvirni tahlil qilish sohasida. Rentgen tasvirlari, MRT kompyuter tomografiyasi, exokardiogramma va elektrokardiogramma kabi tibbiy tasvirlar turli kasalliklarni tashxislash va

davolashda muhim rol o'ynaydi. Ushbu tasvirlarni tahlil qilish uchun sun'iy intellektdan foydalanish tashxisning aniqligi va tezligini sezilarli darajada oshirishi, shuningdek, tibbiyot mutaxassislari yukini kamaytirishi mumkin.

Kalit so'zlar: *Sun'iy intellekt, konvolyutsion neyron tarmoqlari (CNN), tibbiy tasvirlar, chuqur o'qitish, mashinali o'qitish, segmentatsiya.*

Sun'iy intellekt katta hajmdagi ma'lumotlarni qayta ishlash va inson ko'ziga aniq bo'lmasligi mumkin bo'lgan xususiyatlarni aniqlash qobiliyatiga ega. Bu, ayniqsa, diagnostika aniqligi va tezligi bemorni muvaffaqiyatli davolash uchun muhim bo'lgan tibbiyotda juda muhimdir. Sun'iy intellektning tibbiy amaliyotga joriy etilishi tibbiy xizmatlar sifatini oshirish va ulardan foydalanish imkoniyatini oshirish uchun yangi imkoniyatlar ochadi.

AI tibbiy tasvirlarni tahlil qilish uchun turli usullar va algoritmlardan foydalanadi.

Chuqur o'qitish va neyron tarmoqlar tibbiy tasvirni tahlil qilishning asosiy vositalaridir. Ular turli patologiyalarni aniqlash va tasniflash uchun katta ma'lumotlar to'plamlarida o'qitiladi. Masalan, konvolyutsion neyron tarmoqlari (CNN) vizual ma'lumotlarni samarali qayta ishlash qobiliyati tufayli tasvirni tahlil qilish uchun keng qo'llaniladi. Ushbu tarmoqlar ko'plab qatlamlardan iborat bo'lib, ularning har biri tasvirlardan ierarxik xususiyatlarni olish uchun maxsus hisob-kitoblarni amalga oshiradi. Chuqur o'qitish yangi ma'lumotlarga avtomatik ravishda moslasha oladigan va vaqt o'tishi bilan ularning aniqligini yaxshilaydigan modellarni yaratishga imkon beradi. Bu, ayniqsa, yangi ma'lumotlar doimiy ravishda kelib turadigan va moslashuvchan bo'lishi kerak bo'lgan tibbiyotda juda muhimdir. Bundan tashqari, chuqur o'qitish ko'plab omillar va o'zaro ta'sirlarni hisobga oladigan murakkab modellarni yaratishga imkon beradi, bu ayniqsa tibbiy tasvirni tahlil qilish uchun foydalidir.

Mashinali o'qitish ma'lumotlardan o'rganadigan va ushbu ma'lumotlar asosida bashorat yoki qarorlar qabul qiladigan algoritmlarni o'z ichiga oladi. Tibbiyotda mashinali o'qitish tasvirlarni tasniflash, anomaliyalarni aniqlash va davolash natijalarini bashorat qilish uchun ishlatilishi mumkin. Misol uchun, mashinali o'qitish algoritmlari o'simta turlarini ularning tasvirlari asosida avtomatik ravishda tasniflash uchun ishlatilishi mumkin, bu esa shifokorlarga tashxisni tezroq va aniqroq qilish imkonini beradi. Mashinali o'qitish, shuningdek, ko'plab omillar va o'zaro ta'sirlarni hisobga oladigan modellarni yaratishga imkon beradi. Masalan, mashinali o'qitish algoritmlari yurak tasvirlarini tahlil qilish va yosh, jins, kasallik tarixi va boshqalar kabi ko'plab omillarga asoslangan yurak xastaligi xavfini bashorat qilish uchun ishlatilishi mumkin.

Tasvirni qayta ishlash segmentatsiya, filtrlash va tasvirni yaxshilash kabi usullarni o'z ichiga oladi. Ushbu usullar tasvir sifatini yaxshilashga yordam beradi

va muhim tafsilotlarni ajratib ko'rsatadi, bu esa AI tomonidan keyingi tahlilni osonlashtiradi. Misol uchun, segmentatsiya tasvirning o'simtalar yoki organlar kabi muayyan joylarini ajratib ko'rsatishga imkon beradi, bu ularni tahlil qilish va tasniflashni osonlashtiradi. Filtrlash va tasvirni yaxshilash tasvir sifatini yaxshilaydi, bu tasvir aniqligi va sifati muhim bo'lgan tibbiy tasvir tahlili uchun ayniqsa muhimdir. Misol uchun, filtrlash shovqinni olib tashlash va tasvirlardagi kontrastni yaxshilash uchun ishlatilishi mumkin, bu patologiyalar va anormalliklarni aniqroq aniqlash imkonini beradi.

Turli tibbiyot sohasida AI dan foydalanish bugungi kunda ommalashmoqda.

Radiologiyada AI rentgen nurlari, MRT va kompyuter tomografiyasini avtomatik ravishda tahlil qilish uchun ishlatiladi. Masalan, sun'iy intellekt o'smalar, sinishlar va boshqa patologiyalarni yuqori aniqlik bilan aniqlay oladi. Bu radiologlarga tezroq va aniqroq tashxis qo'yishga yordam beradi. Shuningdek, sun'iy intellekt yordamida tasvirlarni avtomatik ravishda segmentlash va tasniflash mumkin, bu tahlil jarayonini tezlashtirishi va mutaxassislarning ish yukini kamaytirishi mumkin. AI 2D tasvirlardan 3D modellarni yaratish uchun ham ishlatilishi mumkin, bu tuzilmalar va patologiyalarni aniqroq vizualizatsiya qilish va tahlil qilish imkonini beradi. Bu, ayniqsa, aniqlik va tafsilotlar juda muhim bo'lgan jarrohlik va boshqa tibbiy muolajalarni rejalashtirish uchun foydalidir.

Onkologiyada AI saraton o'simtalarini erta aniqlash va tasniflashda yordam beradi. Misol uchun, AI biopsiyalarni tahlil qilishi va saraton hujayralarini dastlabki bosqichlarda aniqlashi mumkin, bu esa muvaffaqiyatli davolanish imkoniyatini sezilarli darajada oshiradi. AI genetik ma'lumotlarni tahlil qilish va genetik belgilar va boshqa omillar asosida saraton xavfini bashorat qilish uchun ham ishlatilishi mumkin. Shuningdek, sun'iy intellekt bemor ma'lumotlarini tahlil qilish asosida shaxsiylashtirilgan davolash rejalarini yaratish va turli muolajalar samaradorligini bashorat qilish uchun ishlatilishi mumkin. Bu davolash natijalarini yaxshilaydi va nojo'ya ta'sirlarni kamaytiradi, bu saraton kasalligi bilan og'rigan bemorlar uchun ayniqsa muhimdir.

Kardiologiyada AI yurakning exokardiogrammalari va boshqa tasvirlarini tahlil qilish uchun ishlatiladi. Bu koronar arteriya kasalligi va yurak yetishmovchiligi kabi yurak kasalliklarini erta bosqichda aniqlash imkonini beradi. AI shuningdek, bemor ma'lumotlari va boshqa omillarni tahlil qilish asosida yurak xastaligi xavfini bashorat qilish uchun ishlatilishi mumkin.

Oftalmologiyada AI diabetik retinopatiya va glaukoma kabi ko'z kasalliklarini tashxislashda yordam beradi. AI retinaning tasvirlarini tahlil qiladi va patologik o'zgarishlarni aniqlaydi, bu esa o'z vaqtida davolash imkonini beradi.

Shuningdek, sun'iy intellekt yordamida tasvirlarni avtomatik ravishda tasniflash va segmentlarga ajratish mumkin, bu tahlil jarayonini tezlashtirishi va mutaxassislarining ish yukini kamaytirishi mumkin.

Tibbiyotda sun'iy intellektdan foydalanish bir qancha afzalliklari va kamchiliklarga ega.

Afzalliklari: Yaxshilangan diagnostika aniqligi ya'ni, sun'iy intellekt tibbiy tasvirlarni yuqori aniqlik bilan tahlil qila oladi va xatolik ehtimolini kamaytiradi. Bu, ayniqsa, bemorni muvaffaqiyatli davolash uchun diagnostika aniqligi muhim bo'lgan tibbiyotda juda muhimdir.

Tahlil tezligi: AI tasvirlarni insonga qaraganda tezroq qayta ishlash va tahlil qilish, diagnostika jarayonini tezlashtirish. Bu natijalarni kutish vaqtini qisqartirish va davolanishni erta boshlash imkonini beradi, bu ayniqsa o'tkir kasalliklarga chalingan bemorlar uchun muhimdir.

Mutaxassislar uchun ish yuklarni kamayishi: Tasvir tahlilini avtomatlashtirish tibbiyot mutaxassislariga diqqatini yanada murakkabroq vazifalarga qaratish imkonini beradi. Bu, ayniqsa, tibbiyot mutaxassislaridan foydalanish imkoniyati cheklangan hududlarda tibbiy xizmatlar sifatini oshirish va ulardan foydalanish imkoniyatini oshirish imkonini beradi.

Diagnostika uchun qulaylik: AI diagnostikani yanada qulayroq qilishi mumkin, ayniqsa tibbiy mutaxassislardan foydalanish imkoniyati cheklangan hududlarda. Bu tibbiy xizmatlar sifatini oshirish va bemorlarning keng doirasi uchun ulardan foydalanish imkoniyatini oshirish imkonini beradi.

Kamchiliklari: ma'lumotlar sifati ya'ni, AI ta'limi katta hajmdagi sifatli ma'lumotlarni talab qiladi. Ma'lumotlarning yetishmasligi yoki sifatsiz ma'lumotlar algoritmlarning aniqligiga salbiy ta'sir ko'rsatishi mumkin. Bu, ayniqsa, AI ni muvaffaqiyatli qo'llash uchun ma'lumotlarning aniqligi va sifati muhim ahamiyatga ega bo'lgan tibbiyotda juda muhimdir.

Maxfiy ma'lumotlar: Tibbiyotda sun'iy intellektdan foydalanish ma'lumotlarning maxfiyligi va xatolar uchun javobgarlik masalalarini keltirib chiqaradi. Bu, ayniqsa, tibbiyotda muhim ahamiyatga ega, bu yerda xatolar bemorlarning salomatligi va hayoti uchun jiddiy oqibatlariga olib kelishi mumkin.

Natijalarni to'g'ri sharhlash: AI yordamida olingan natijalarni sharhlash qiyin bo'lishi mumkin, bu mutaxassislar uchun qo'shimcha treningni talab qiladi. Bu, ayniqsa, tibbiyotda muhim ahamiyatga ega, bu yerda natijalarning aniqligi va to'g'ri talqin qilinishi bemorni muvaffaqiyatli davolash uchun juda muhimdir.

Tartibga solish va standartlashtirish: Tibbiyotda AI xavfsizligi va samaradorligini ta'minlash uchun aniq standartlar va tartibga solish zarur. Bu,

ayniqsa, xavfsizlik va samaradorlik bemorlarning salomatligi va hayoti uchun muhim bo'lgan tibbiyotda muhim ahamiyatga ega.

AI tibbiyotda tashxis va davolashni yaxshilash uchun ulkan salohiyatga ega. U allaqachon radiologiya, onkologiya, kardiologiya va oftalmologiya kabi tibbiyotning turli sohalarida ajoyib natijalarni ko'rsatmoqda.

Kelajakda biz sun'iy intellekt texnologiyalarining yanada rivojlanishi va takomillashtirilishini amalga oshirishimiz mumkin, bu esa yanada aniq va tezkor tashxis qo'yish, shuningdek, yangi davolash usullari paydo bo'lishiga olib keladi. Odamlar salomatligi va hayot sifatini yaxshilash uchun sun'iy intellektning kuchini maksimal darajada oshirish uchun ushbu sohada tadqiqot va ishlanmalarni davom ettirish muhimdir.

Bundan tashqari, bemorning xavfsizligi va huquqlari himoya qilinishini ta'minlash uchun axloqiy va ma'lumotlar maxfiyligi masalalari hal qilinishi kerak. Bu, ayniqsa, maxfiylik va ma'lumotlar xavfsizligi bemorlarning ishonchi va sun'iy intellektni muvaffaqiyatli qo'llash uchun muhim bo'lgan tibbiyotda muhim ahamiyatga ega.

AI, shuningdek, yangi davolash usullarini ishlab chiqish va mavjud usullarni yaxshilashga yordam beradi. Masalan, sun'iy intellekt bemor ma'lumotlarini tahlil qilish asosida shaxsiylashtirilgan davolash rejalarini yaratish va turli muolajalar samaradorligini bashorat qilish uchun ishlatilishi mumkin. Bu davolanish natijalarini yaxshilaydi va nojo'ya ta'sirlarni kamaytiradi, bu surunkali va murakkab kasalliklarga chalingan bemorlar uchun ayniqsa muhimdir.

Xulosa qilib aytganda, AI tibbiyotda diagnostika va davolashni yaxshilash uchun ulkan salohiyatga ega. Biroq bu salohiyatni to'liq ro'yobga chiqarish uchun qator qiyinchiliklarni yengib o'tish, bu boradagi izlanish va ishlanmalarni davom ettirish zarur.

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ВЗАИМООТНОШЕНИЕ КИБЕРБЕЗОПАСНОСТИ И ЦИФРОВОЙ ЭКОНОМИКИ

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***Аннотации:** в этой статье даны обозначения к терминам кибербезопасность, киберугроза. А также даны информации о цифровизации и влияние кибербезопасности к цифровым технологиям.*

Ключевые слова: кибербезопасность, защита ИТ-системы, цифровая безопасность, цифровые технологии.

Везде мы слышим термин кибербезопасность, но не все мы знаем значение этого слова и вообще для чего это нужно? Я хочу дать понятие об этом.

Кибербезопасность - это защита компьютеров, сетей, программных приложений и более критически важных систем от цифровых угроз. Кибербезопасность пишут в разных языках программирования, но иногда это зависит от задач и области специализации. Но для начинающих рекомендуется освоить Python потому что это более распространён в этой сфере.

А для глубокого понимания нужно изучать в языках C и C++.

Работа кибербезопасность включает в себя защищение ИТ-системы от взломов, останавливает и предотвращает кражи и утечки.

Кибербезопасность нужна везде с сферы бизнеса до мобильных технологий. В этой системе можно выделить несколько основных категорий. Безопасность сетей действия по защите компьютерных сетей от угроз и атак.



Есть несколько видов кибер угроз:

- 1 Фишинг
- 2 Вишинг
- 3 Психологическая атака и другие.

О понятие цифровая экономика

В цифровой экономике изучаются направления как электронная коммерция, крипто валюта и другие.

Цифровая экономика — это собирательный термин для всех экономических транзакций, которые происходят в Интернете С появлением технологий и процессом глобализации цифровая и традиционная экономики сливаются в одну.



Кибербезопасность, также известная как цифровая безопасность, — это практика защиты цифровых сведений, устройств и ресурсов и это включает в себе личные данные, учетные записи, файлы, фотографии и даже деньги.

В современном мире цифровая экономика и кибербезопасность является очень важным средством. Во первых цифровая экономика основана на использовании технологий. Во вторых эффективная защита является основной надёжностью для пользователей и бизнеса к цифровым сервисам.

Самые основные аспекты взаимоотношении:

- 1 В цифровой экономике обрабатываются огромные объемы данных, включая персональные данные клиентов. Кибербезопасность обеспечивает защиту этих данных от утечек и кражи.

2 Безопасные технологии стимулируют инновации. Компании готовы внедрять новые решения, зная, что они защищены от киберугроз.

3 Успех цифровых платформ зависит от доверия пользователей. Наличие надежных систем кибербезопасности повышает уровень доверия, что способствует росту бизнеса.



Заключение

В заключение, можно отметить, что взаимосвязь между кибербезопасностью и цифровой экономикой является критически важной для устойчивого развития современного общества. С ростом цифровых технологий и увеличением объемов данных, которые обрабатываются и хранятся в сети, киберугрозы становятся все более разнообразными и изощренными. Это создает необходимость в эффективных системах защиты, которые не только защищают информацию, но и поддерживают доверие пользователей и бизнес-партнеров.

Инвестиции в кибербезопасность становятся неотъемлемой частью стратегии цифровой трансформации организаций. Без надежной защиты данные и активы становятся уязвимыми, что может привести к серьезным финансовым потерям и репутационным рискам. Таким образом, кибербезопасность не просто техническая задача, а важный элемент бизнес-стратегии, обеспечивающий долгосрочную стабильность и конкурентоспособность в условиях цифровой экономики.

В конечном итоге, эффективное сотрудничество между государственными структурами, частным сектором и образовательными учреждениями будет способствовать созданию безопасной цифровой среды, которая позволит максимально использовать потенциал цифровой экономики и содействовать ее развитию.

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FULL REFERENCE IMAGE QUALITY ASSESSMENT METHODS IN MEDICAL IMAGES

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TUIT named after Muhammad Al-Khorazmi, PhD student

Abstract. *Medical imaging is essential for modern healthcare, offering critical insights for diagnosis, treatment planning, and patient monitoring. As imaging techniques like CT, MRI, and PET have advanced, the volume of medical images has grown, especially in telemedicine applications. However, various impairments can degrade image quality, affecting clinical performance. Full Reference Image Quality Assessment (FR-IQA) methods are crucial for evaluating and maintaining image quality by comparing test images to high-quality reference images. Key metrics like Mean Squared Error (MSE), Peak Signal-to-Noise Ratio (PSNR), Multi-Scale Structural Similarity Index (MS-SSIM), and Visual Information Fidelity (VIF) help ensure reliable assessments. These methods enhance the diagnostic integrity of images, supporting the increasing demand for high-quality medical imaging.*

Keywords. *Medical imaging, Image quality assessment, Full Reference Image Quality Assessment (FR-IQA), Mean Squared Error (MSE), Peak Signal-to-Noise Ratio (PSNR), Multi-Scale Structural Similarity Index (MS-SSIM), Visual Information Fidelity (VIF)*

Introduction

Medical imaging and videos offer essential clinical insights from the human body with minimal invasiveness, providing structural and functional information that cannot be obtained otherwise. In modern healthcare, medical imaging is crucial for diagnosis, treatment planning, and patient monitoring. Over the past decades, these techniques have continuously improved and are extensively used in

various medical fields. The World Health Organization (WHO) estimated that around 3.6 billion diagnostic procedures were conducted worldwide annually between 1997 and 2007[1]. Radiology leads in producing medical imaging content, employing a wide range of imaging modalities[2]. Data from the Organization for Economic Co-operation and Development (OECD) shows a notable rise in the annual number of Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Positron Emission Tomography (PET) scans, with over 253 million exams reported by OECD countries in the last decade[3]. Furthermore, various other imaging techniques add to the increasing volume of medical images and videos, which are now often transmitted in real-time for telemedicine applications. Thus, significant amounts of content from different acquisition methods are continually produced in medical practice.

Various impairments can affect the quality of the final visual signal, impacting how viewers (such as clinicians and radiologists) perceive it and their performance in clinical tasks. These impairments depend on a wide range of acquisition and reconstruction factors, often unique to each imaging modality. Additionally, external and patient-related factors can introduce artifacts into the acquired content. Images and videos are also subject to various processing, encoding/compression, transmission, and visualization techniques. In telemedicine, for instance, video content and real-time interactions are crucial, leading to high demands on hardware resources and network bandwidth for data storage and transmission. Therefore, measuring image and video quality in healthcare applications is essential for improving methodologies throughout the clinical workflow. However, it remains a significant challenge due to the diversity of content, applications, and impairments. This paper aims to provide researchers with a comprehensive understanding of current limitations and future opportunities in this field.

Full Reference Image Quality Assessment (FR-IQA)

Full Reference Image Quality Assessment (FR-IQA) is a method used to evaluate the quality of an image by comparing it with a reference image that is assumed to be of perfect quality. This type of assessment is essential in various fields, including medical imaging, where maintaining high image quality is crucial for accurate diagnosis and treatment planning. FR-IQA relies on the availability of a pristine reference image. The quality of the test image is assessed by measuring the differences between the test image and the reference image. The goal is to quantify the perceived visual quality degradation[4].

Mean Squared Error (MSE)

Mean Squared Error (MSE) is a fundamental metric used in Full Reference Image Quality Assessment (FR-IQA) to evaluate the quality of an image by comparing it with a reference image. MSE quantifies the average squared differences between corresponding pixels of the test and reference images. MSE is defined as:

$$MSE = \frac{1}{MN} \sum_{i=1}^M \sum_{j=1}^N (I(i,j) - K(i,j))^2$$

where:

$I(i,j)$ is the pixel value at position (i,j) in the test image.

$K(i,j)$ is the pixel value at position (i,j) in the reference image.

M and N are the dimensions of the images.

Characteristics

Simple Calculation: MSE is easy to compute, making it a popular choice for initial image quality assessments.

Pixel-wise Difference: It measures the squared difference between corresponding pixels, emphasizing large errors due to the squaring operation.

Sensitivity to Outliers: Because it squares the differences, MSE is highly sensitive to large errors (outliers).

Lower MSE: Indicates that the test image is more similar to the reference image, implying better image quality.

Higher MSE: Suggests greater dissimilarity between the test and reference images, indicating poorer image quality.

Peak Signal-to-Noise Ratio (PSNR)

Peak Signal-to-Noise Ratio (PSNR) is a widely used metric for assessing the quality of an image compared to a reference image. It is derived from the Mean Squared Error (MSE) and expresses the ratio between the maximum possible power of a signal and the power of corrupting noise that affects the fidelity of its representation.

PSNR is defined as: $PSNR = 10 \log_{10} \left(\frac{MAX^2}{MSE} \right)$

where:

MAX is the maximum possible pixel value of the image (for an 8-bit image, $MAX = 255$).

MSE is the Mean Squared Error between the reference and test images.

Characteristics

Logarithmic Scale: PSNR uses a logarithmic scale to provide a more intuitive measure of quality. Small differences in image quality are more discernible at lower PSNR values.

Unit: PSNR is expressed in decibels (dB), which quantifies the ratio between the reference signal and the noise.

Higher PSNR: Indicates better image quality, implying that the test image is closer to the reference image.

Lower PSNR: Suggests poorer image quality, indicating greater deviations from the reference image.

Typical values for PSNR in lossy image and video compression range between 30 and 50 dB, where higher values represent better quality[5].

The Multi-Scale Structural Similarity Index (MS-SSIM) is an extension of the Structural Similarity Index (SSIM) designed to evaluate image quality by considering variations at multiple scales. It enhances the ability to predict perceived visual quality by analyzing images at different resolutions and combining the results into a single score. MS-SSIM evaluates the structural similarity between a reference image and a test image across multiple scales[6]. The general steps are as follows:

Decomposition: The reference and test images are iteratively low-pass filtered and downsampled to create multiple scaled versions of the images.

Calculation of SSIM: At each scale, the SSIM index is calculated. The final MS-SSIM score is a weighted combination of the SSIM scores from each scale.

For a single scale, the SSIM index between images x and y is given by: where:

$$SSIM(x, y) = \frac{(2\mu_x\mu_y + C_1)(2\sigma_{xy} + C_2)}{(\mu_x^2 + \mu_y^2 + C_1)(\sigma_x^2 + \sigma_y^2 + C_2)}$$

μ_x and μ_y are the mean intensities of x and y , respectively.

σ_x^2 and σ_y^2 are the variances of x and y , respectively.

σ_{xy} is the covariance between x and y .

C_1 and C_2 are constants to stabilize the division with weak denominators.

The MS-SSIM index is computed as:

$$MSSSIM(X, Y) = [l_M(X, Y)]^{\alpha_M} \prod_{j=1}^M [c_j(X, Y) \cdot s_j(X, Y)]^{\beta_j}$$

where:

$l_M(X, Y)$ is the luminance comparison at the coarsest scale M .

$c_j(X, Y)$ and $s_j(X, Y)$ are the contrast and structure comparisons at scale j .

α_M , β_j are weighting factors for the luminance, contrast, and structure components at each scale.

Characteristics

Multi-Scale Analysis: MS-SSIM evaluates image quality at various scales, making it more sensitive to changes that occur at different resolutions.

Perceptual Relevance: It is more aligned with human visual perception than single-scale SSIM or pixel-based metrics like MSE and PSNR.

Higher MS-SSIM: Indicates that the test image is more similar to the reference image, implying better perceived visual quality.

Lower MS-SSIM: Suggests greater dissimilarity between the test and reference images, indicating poorer perceived visual quality.

Visual Information Fidelity (VIF) is a full-reference image quality assessment metric that evaluates the fidelity of visual information between a reference image and a test image. Unlike simpler metrics, VIF is based on natural scene statistics and models of the human visual system (HVS), aiming to quantify how much of the visual information in the reference image is present in the test image. VIF is defined based on the concept of mutual information, which measures the amount of information that one random variable contains about another. For image quality assessment, VIF quantifies the mutual information between the reference and distorted images.

The VIF index is computed as:

$$VIF = \frac{I(C; E)}{I(F; E)}$$

where:

$I(C; E)$ is the mutual information between the reference image (C) and the test image (E).

$I(F; E)$ is the mutual information between the features extracted from the reference image (F) and the test image (E).

Characteristics

Natural Scene Statistics: VIF leverages statistical models of natural images, which are based on the typical properties of natural scenes.

Human Visual System (HVS): VIF incorporates models of the HVS to better align with human perception of image quality.

Information Fidelity: VIF measures the fidelity of visual information, focusing on how well the information from the reference image is preserved in the test image.

Higher VIF: Indicates that the test image retains a higher amount of visual information from the reference image, implying better quality.

Lower VIF: Suggests that the test image has lost significant visual information compared to the reference image, indicating poorer quality.

Conclusion

Full Reference Image Quality Assessment methods play a crucial role in ensuring the quality and reliability of medical images. By comparing test images with high-quality reference images, these methods help maintain the diagnostic integrity of images across various medical imaging modalities. Advanced metrics like SSIM, MS-SSIM, VIF, and FSIM provide perceptually relevant evaluations, aligning more closely with human visual perception and enhancing the assessment of image quality in clinical settings

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VI SHO‘BA. RAQAMLI IQTISOD, FUNDAMENTAL VA GUMANITAR FANLAR RIVOJINING DOLZARB MASALALARI



PARALINGUISTICS AND ITS PROBLEMS

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Abstract. *Paralinguistics encompasses the vocal elements of communication beyond words, such as tone, pitch, volume, and speed. These features are crucial for conveying emotion, clarifying intent, and building rapport. However, challenges arise, including cultural differences in interpreting cues, ambiguity in non-verbal signals, and context dependency that influences meaning. Individual variations in expression, technological limitations in written communication, and accessibility issues for those with hearing impairments further complicate interactions. Additionally, emotional misreading and overemphasis on paralinguistic cues can lead to misunderstandings. To enhance communication, it's essential to promote awareness of both verbal and non-verbal elements, fostering skills that account for the complexities of paralinguistics.*

Key words. *Paralinguistics, Vocal elements, Tone, Pitch, Volume, Speed, Emotion, Intent*

Paralinguistics refers to the aspects of spoken communication that do not involve words themselves, such as tone of voice, pitch, volume, speed, and non-verbal cues. While it plays a crucial role in conveying meaning and emotion, there are several challenges associated with paralinguistics:

Cultural Differences: Different cultures may interpret paralinguistic cues in various ways. For example, a raised voice might indicate excitement in one culture but aggression in another.

Ambiguity: Non-verbal cues can be ambiguous. A sarcastic tone might be misinterpreted as sincere, leading to misunderstandings.

Context Dependency: The meaning of paralinguistic features often depends heavily on context. A tone that's appropriate in one situation may be inappropriate in another.

Individual Variation: People have different ways of expressing themselves paralinguistically. Personal traits, such as introversion or extroversion, can affect how someone uses tone and volume.

Technological Limitations: In written communication (like texts or emails), paralinguistic features are often lost, leading to potential misinterpretations.

Accessibility: For individuals with hearing impairments, relying on paralinguistic cues can be challenging, necessitating alternative forms of communication.

Emotional Misreading: People may misread emotional cues based on paralinguistic features, leading to incorrect assumptions about others' feelings or intentions.

Overemphasis: Sometimes, people may place too much weight on paralinguistic cues, overshadowing the actual content of the message.

Addressing these challenges often involves promoting awareness of paralinguistic elements and fostering effective communication skills that consider both verbal and non-verbal cues.

Communication is a multifaceted process, often described as a blend of verbal and non-verbal elements. While we typically focus on the words we speak, an equally important aspect lies in how we say those words—this is where paralinguistics comes into play. Paralinguistics encompasses the vocal elements that accompany speech, including tone, pitch, volume, and speech rate. These elements can dramatically alter the meaning of a message, providing emotional depth and context that mere words may fail to convey.

The Role of Paralinguistics

Conveying Emotion: Paralinguistic features are critical in expressing feelings. A soft, slow voice can convey sadness or empathy, while a loud, fast-paced tone may indicate excitement or anger. This emotional undertone can sometimes communicate more than the actual content of the message.

Clarifying Intent: Paralinguistic cues help listeners discern the speaker's intent. For instance, a sarcastic remark may sound positive in tone, but the underlying pitch or emphasis can signal irony, altering its interpretation.

Building Rapport: Effective communicators often adjust their paralinguistic features to match those of their audience, fostering connection and understanding. This mirroring can create a sense of familiarity and comfort, facilitating smoother interactions.

Challenges in Paralinguistic Communication

Despite its importance, paralinguistics presents several challenges that can complicate communication:

Cultural Variability: Different cultures interpret paralinguistic cues in unique ways. For example, in some cultures, high volume might signify enthusiasm, while in others, it can be perceived as rudeness. This variability can lead to misunderstandings in cross-cultural interactions.

Misinterpretation: Listeners may easily misinterpret paralinguistic signals. A person's tone might suggest they are angry when they are merely excited or passionate about a topic, leading to confusion and conflict.

Context Dependence: The meaning of paralinguistic cues can shift depending on the context. A tone that conveys urgency in a business meeting might seem out of place during a casual conversation, illustrating the importance of situational awareness.

Emotional Congruence: When the emotional tone doesn't align with the spoken words, it can create cognitive dissonance. For instance, if someone delivers bad news cheerfully, it can lead to mistrust and skepticism.

Technology Limitations: In digital communication, such as emails or texts, paralinguistic cues are often lost, making it difficult to convey tone or emotion. This absence can lead to misinterpretations that might not occur in face-to-face interactions.

Disability and Variation: Individuals with speech or hearing impairments may communicate differently, sometimes relying less on traditional paralinguistic cues. This variation can create barriers to understanding, highlighting the need for adaptive communication strategies.

Subjectivity: The interpretation of paralinguistic features is inherently subjective. Factors such as personal experiences, mood, and even biases can affect how cues are perceived, complicating interpersonal communication.

Navigating Paralinguistic Challenges

To navigate the complexities of paralinguistics effectively, individuals can adopt several strategies:

Increase Awareness: Being mindful of both one's own paralinguistic cues and those of others can enhance communication. Observing how tone and pitch affect conversations can provide valuable insights.

Ask for Clarification: When unsure about a message's meaning, it's helpful to ask questions. This can prevent misunderstandings and ensure that the intended message is conveyed accurately.

Adapt Communication Styles: Adjusting one's vocal delivery to suit the audience can improve understanding and rapport. Being sensitive to cultural differences in paralinguistic interpretation is also essential.

Utilize Technology Wisely: In digital communication, consider supplementing texts with emojis or voice messages to convey tone. This can help bridge the gap left by the absence of vocal cues.

Conclusion

Paralinguistics is a vital component of communication that enriches interactions by adding emotional and contextual layers. Understanding its role and challenges can lead to more effective and meaningful exchanges. By increasing awareness and employing adaptive strategies, individuals can enhance their communication skills, fostering better understanding and stronger relationships in both personal and professional contexts.

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SANOAT TARMOQLARIDA RAQAMLI TEXNOLOGIYALARNING ROLI

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Annotatsiya: *Ushbu maqolada raqamlashtirish tushunchasi, uni iqtisodiyotni rivojlantirishdagi o‘rni haqida, bugun jamiyatda raqamli texnologiyalarning ahamiyati tobora ortib borayotgani hamda ularning keng joriy qilinishi va raqamli iqtisodiyotni rivojlantirish masalalari hozirgi zamonda har bir davlat uchun jiddiy hayotiy masalaga aylanib bormoqda. Raqamli transformatsiya jarayonining mohiyati, ushbu jarayonni korxonalar faoliyatiga tadbiq etish strategiyasi va ushbu strategiyani amalga oshirish yo‘llari, raqamli texnologiyalarning guruhlanishi, ushbu texnologiyalarni joriy qilishning afzalliklari va keltirishi mumkin bo‘lgan ehtimoliy zararlari, raqamli korxonani joriy etish bosqichlari va modellari yoritib berilgan hamda amaliy tavsiyalar berilgan.*

Kalit so‘zlar: *raqamlashtirish, raqamli korxonalar, raqamli transformatsiya, bulutli texnologiyalar, katta ma’lumotlar, raqamli transformatsiyalash modellari, jarayon modeli, texnologiya modeli, matritsa modeli.*

Iqtisodiyot tarmoqlaridagi amalga oshirilayotgan islohotlar natijasida raqamli axborotlar ta’siri asosida kuzatilayotgan jarayonlar real sektorning

strategik rivojlanishida asosiy hal qiluvchi kuchga ega bo'lmoqda. Shunday ekan sanoat korxonalarimizda raqamli ishlab chiqarishni to'g'ri tashkil etish, ushbu jarayonni korxonaga joriy etish strategiyasini to'g'ri tanlashga katta ahamiyat qaratish lozim. Raqamlashtirishning rivojlanishi bilan korxonaning biznes modellari doimiy ravishda o'zgarib turadi. shartnomalarning ahamiyati to'g'risida izlanishlar olib borilgan. O'zbekistonda amalga oshirilayotgan islohotlar natijasida ochiqlik, xalqaro iqtisodiy-siyosiy aloqalarning rivojlanishi yurtimizda sanoat tarmoqlarini modernizatsiya qilish, texnik va texnologik jihatdan qayta jihozlash imkoniyatlarini yuzaga keltirdi.

Ma'lumki, bugungi kunda raqamli iqtisodiyot qo'shimcha qiymat yaratishda ham muhim ahamiyat kasb etmoqda. Iqtisodiyot tarmoqlaridagi amalga oshirilayotgan islohotlar natijasida raqamli axborotlar ta'siri asosida kuzatilayotgan jarayonlar sanoat korxonalarini strategik rivojlanishida asosiy hal qiluvchi kuchga ega bo'lmoqda. Tadqiqot metodologiyasi iqtisodiyotimizni rivojlantirish, yangilash va modernizatsiya qilish bo'yicha olib borilayotgan oqilona iqtisodiy islohotlar natijasida bugungi kunda raqamli iqtisodiyotni rivojlantirishga erishilmoqda. Raqamli transformatsiya korxonalarining daromadlarini va investitsion jozibadorligini yaxshilashda muhim rol o'ynadi. Yuqori texnologiyali ishlab chiqarish, ishlab chiqarish jarayonlarini avtomatlashtirish, boshqaruvda ma'lumotlar bazasidan oqilona foydalanish kabi imkoniyatlari bilan raqamli texnologiyalar har qanday korxonaga uchun ularning samaradorligiga katta ta'sir etuvchi omil hisoblanadi.

Bundan tashqari, COVID-19 davrida raqamli texnologiyalarni tezda tatbiq etgan kompaniyalar inqiroz davrida o'z daromadlarini himoya qilish yoki xatto oshirishga muvaffaq bo'lishdi. Ammo yuqorida sanab o'tganimizdek raqamli transformatsiya jarayonini bir qancha xususiyatlar, korxonaga ko'lami, mahsulot turlari, raqobat muhiti, moliyaviy manbaalar kabilarni e'tiborga olgan holda boshlash maqsadga muvofiq sanaladi. Raqamli zavodning asosiy maqsadi korxonaning barcha asosiy tuzilmalari, jarayonlari va resurslarini kompleks rejalashtirish, baholash va doimiy takomillashtirishdir. Resurslarni markazsizlashtirish va virtualizatsiya qilish bilan ayrim toifadagi mahsulotlarni ishlab chiqarish uchun ixtisoslashtirilgan liniyalarni qurishning hojati yo'q. Korxonaning raqamli transformatsiyasining tarmoq modeli sanoat yondashuviga va sanoat korxonalarining milliy iqtisodiyotning boshqa tarmoqlari korxonalarini bilan aloqalariga asoslanadi. Ushbu model doirasida raqamli infratuzilmani yaratish va uning elementlari: raqamli ishlab chiqarish tizimi, oziq-ovqat va suv yetkazib berish, aqlli energiya ishlab chiqarish tizimlari, aqlli zavodlar, taqsimlangan energiya tizimlari, haydovchisiz avtomobil tizimlari, uchuvchisiz

havo kemalari, raqamli temir yo‘llar, telemeditsina, raqamli tibbiyot, aqlli uylar, aqlli yo‘llar, raqamli moliyaviy texnologiyalar, raqamli xavfsizlik tizimlari, elektron tijorat, raqamli madaniyat bir-biri bilan funktsional munosabatlar orqali ta’sirlashadi. Texnologik modelni qurish korxonaning raqamli transformatsiyasida global tendentsiyalarning ma’lum texnik va texnologik vositalaridan ustuvor foydalanishga asoslangan. Texnologik jarayonlar va ob’ektlarni raqamli loyihalash va modellashtirish, katta ma’lumotlarni tahlil qilish, mashinani o‘rganish va sunoiy intellekt texnologiyalari kabi innovatsion texnologiyalarni ishlab chiqarishdagi ahamiyatning jadal o‘sishi ishlab chiqarishni joriy etish orqali boshqariladigan raqamli transformatsiya texnologik modelini shakllantirishga olib keladi. Xulosa o‘rnida ta’kidlash joizki, iqtisodiyot tarmoqlariga raqamli texnologiyalarni joriy etish natijasida qator ustunliklarga ega bo‘lib ular quyidagilarda o‘z ifodasini topadi: korxonalar faoliyatini avtomatlashtirilishi va jarayonning to‘liq raqamlashtirilishiga erishilishi natijasida raqobatbardosh mahsulotlar ishlab chiqariladi, ishlab chiqarish va mehnat resurslaridan samarali va tejamkorlik bilan foydalanish yo‘lga qo‘yiladi, korxonalar investitsion jozibadorligi va ishlab chiqarish jarayonining shaffofligi ta’minlanadi. Sanoat korxonalarida raqamlashtirish jarayoni o‘ziga hos xususiyatlarga egaligi, moliyaviy resurslar va shartli infratuzilmaga muhtojligi nuqtai nazaridan ehtimoliy yo‘qotishlarga olib kelishi ham mumkinligi ayniqsa O‘zbekistondan rivojlanayotgan mamlakatda faoliyatini olib boradigan korxonalarda ushbu jarayonni to‘g‘ri rejalashtirish, raqamli transformatsiyalash strategiyasini to‘g‘ri shakllantirish, ushbu jarayonni korxonalar holatiga va faoliyat turiga muvofiq holatda rejalashtirish muhim ahamiyat kasb etadi.

Raqamli transformatsiyaning tegishli modellaridan, yani jarayon, tarmoq, texnologik modellaridan birini tanlash esa sanoat korxonalarida bajarilishi kerak bo‘lgan ishlarni spetsifikatsiya qilishga, samaradorlikni izchillikda va aniq belgilangan harakatlar rejasi orqali oshirish imkonini beradi. So‘nggi yillarda iqtisodiyotni rivojlantirishda ilg‘or texnologiyalar va innovatsiyalarning ahamiyati oshib bormoqda. Eng yangi texnologiyalar ishlab chiqarish va biznes jarayonlarining samaradorligini oshirishi mumkin. Eng yangi texnologiyalar inson faoliyatining barcha yangi sohalari va sohalariga kirib borishi bilan an’anaviy yondashuvlar va ish uslublari o‘zgaradi. Axborot-kommunikatsiya texnologiyalarining (AKT) paydo bo‘lishi va tarqalishi global iqtisodiyotga shu qadar ta’sir ko‘rsatdiki, yangi bir hodisa – raqamli iqtisodiyot paydo bo‘ldi. Axborot-kommunikatsiya texnologiyalari ta’siri ostida odamlarning turmush tarzi o‘zgarib boshladi, foydalanuvchilar o‘rtasidagi aloqalar o‘zgardi - turli jug‘rofiy mintaqalar, faoliyat sohalari va boshqalardagi odamlar o‘rtasida aloqa o‘rnatish

imkoniyati paydo bo'ldi. Bu raqamli iqtisodiyotning asosi bo'lgan axborot aloqalarining jadal o'sishi. Raqamli texnologiyalarning ta'siri global miqyosda ham, mahalliy darajada ham seziladi.

Raqamli iqtisodiyot yangi ishlab chiqarishlarning kombinatsiyasi sifatida global iqtisodiyotning tez o'sib borayotgan qismidir. Yangi texnologiyalar yaxshi tashkil etilgan xo'jalik yurituvchi subyektlar faoliyatining ba'zi jihatlariga o'zgartiruvchi ta'sir ko'rsatadi, bu asosan ishlaydigan mexanizmlarni – aloqa vositalarini yoki sanoat mashinalarini raqamli yoki raqamli mexanizmlarga almashtirish, shuningdek, ularni yanada modernizatsiya qilishdan iborat. Raqamli iqtisodiyotning o'sishi raqamli va mobil texnologiyalar bilan bevosita bog'liq bo'lgan bir qator bozorlarning o'sishi bilan bog'liq. Texnologiyalar rivojlanishining hozirgi bosqichida va bozorlarning hozirgi holati sharoitida raqamli iqtisodiyotni maqsad sifatida emas, balki iqtisodiy faoliyat samaradorligini oshirish vositasi sifatida ko'rib chiqish kerak. Zamonaviy raqamli iqtisodiyot yangi biznes modellarini taklif qiladi va boshqaruv mexanizmlarini o'zgaruvchan voqelikni aks ettirish uchun o'zgartirish zarurligini ta'kidlaydi.

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USING SMART TECHNOLOGY IN TEACHING ENGLISH FOR PRE-INTERMEDIATE LEVEL STUDENTS

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Abstract: *This article explores the integration of SMART technology in English language teaching, specifically targeting pre-intermediate level students. The study investigates how SMART tools enhance engagement, improve language skills, and facilitate collaborative learning. The findings indicate that the use of SMART technology significantly contributes to a more interactive and effective learning environment.*

Keywords: *SMART technology, English language teaching, pre-intermediate students, engagement, collaborative learning.*

In the digital age, the integration of technology in education has transformed traditional teaching methods. SMART technology, encompassing interactive whiteboards, tablets, and other digital tools, offers innovative ways to enhance the learning experience. This article examines the role of SMART technology in teaching English to pre-intermediate level students, focusing on its impact on engagement, language acquisition, and collaborative learning.

Methods. The study involved 60 pre-intermediate English language learners from a diverse background in a suburban high school. Students were divided into two groups: one utilizing SMART technology and the other employing traditional teaching methods.

Materials. The materials included SMART boards, interactive software, and digital resources tailored for English language learning. Traditional materials consisted of textbooks and printed worksheets.

Procedure. Over the course of a semester, both the experimental and control groups were exposed to similar instructional content in terms of the topics and learning objectives. The key difference lay in the delivery method. The SMART technology group participated in interactive, technology-enhanced lessons that made extensive use of SMART apps and other digital tools. These lessons incorporated multimedia presentations such as videos, animations, and interactive graphics to make learning more engaging. In addition, the group experienced gamified learning activities where students completed tasks and quizzes in a game-like format, which introduced an element of fun and competition. Moreover, the group was involved in collaborative projects, where students worked together in teams using digital platforms provided by SMART technology to create presentations, complete assignments, or conduct research.

On the other hand, the traditional group followed a more conventional instructional approach. Their lessons primarily involved lectures, where the teacher delivered content verbally and used minimal technology. Discussions were facilitated as part of the learning process, where students had the opportunity to ask questions and engage with the material through conversation. Additionally, students in this group were given individual assignments to complete outside of class, which involved applying the knowledge learned during lectures, often through written work or problem-solving exercises.

Data Collection. Data for this study were collected using multiple methods to capture both the cognitive and affective aspects of learning. First, pre- and post-tests were administered to all participants to assess their language skills across the four key domains: listening, speaking, reading, and writing. These tests were designed to evaluate the students' abilities at the beginning of the semester and measure any improvement by the end.

In addition to performance data, student engagement was measured through surveys administered at regular intervals during the semester. These surveys included questions about students' motivation, interest in the content, perceived effectiveness of the teaching methods, and overall satisfaction with the course. This helped to gauge the differences in how students interacted with the material and their level of enthusiasm for learning.

Finally, classroom observations were conducted by independent observers to provide qualitative insights into the dynamics of the classroom environment. Observers took note of student participation, interaction patterns, and the general

atmosphere in both groups. They looked for indicators such as collaboration, attention, and responsiveness to the teacher's prompts. This allowed for a more nuanced understanding of how the teaching methods influenced student behavior and engagement in real time.

Results

Language Skills Improvement. The results showed a significant improvement in language skills among the SMART technology group compared to the traditional group. The pre- and post-test scores indicated an average improvement of 20% in listening and speaking skills, while reading and writing skills improved by 15%.

Student Engagement. Surveys revealed that 85% of students in the SMART technology group reported feeling more engaged during lessons. In contrast, only 50% of students in the traditional group expressed similar sentiments. Observations noted increased participation and enthusiasm in the SMART group, with students actively collaborating on tasks.

Collaborative Learning. The use of SMART technology facilitated collaborative learning, as students frequently worked in pairs or small groups to complete tasks. This approach fostered communication and peer learning, which were less pronounced in the traditional setting.

Discussion. The findings demonstrate that SMART technology significantly enhances the learning experience for pre-intermediate English students. The interactive nature of SMART tools not only improves language skills but also fosters a more engaging and collaborative classroom environment. These results align with previous research suggesting that technology integration in education can lead to improved outcomes (Hattie, 2009).

Limitations. This study is limited by its small sample size and short duration. Future research should explore long-term effects and include a more diverse population.

Integrating SMART technology in English language teaching for pre-intermediate students offers numerous benefits, including improved language skills, heightened engagement, and enhanced collaborative learning. Educators are encouraged to adopt these tools to create a more dynamic and effective learning environment.

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ПРАКТИЧЕСКИЕ МЕТОДЫ ФОРМИРОВАНИЯ УСТОЙЧИВЫХ ФИНАНСОВЫХ РЕСУРСОВ ДЛЯ МАЛЫХ И СРЕДНИХ ПРЕДПРИЯТИЙ

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Аннотация: *В исследовании изучена роль устойчивого финансирования в повышении роста и устойчивости малых и средних предприятий (МСП), с уделением внимания на экологические, социальные и управленческие принципы (ESG). Целью работы является определение устойчивых методов финансирования, выявление барьеров для доступа, оценка влияния устойчивого финансирования на рост МСП, изучение роли цифровизации. Изучение зарубежной литературы предлагают обзор методов устойчивого финансирования МСП. Выводы показывают, что, несмотря на растущую доступность финансовых инструментов, МСП сталкиваются с трудностями при доступе к ним из-за отсутствия осведомленности и сложности подачи заявок. Также, исследованы роль цифровизации в расширении доступа к финансированию. По результатам предложены рекомендации по проведению инклюзивной политики, разработки*

эффективных финансовых продуктов, повышению осведомленности МСП об преимуществах устойчивого финансирования. В изучение использованы база данных Scopus и Google Scholar.

Ключевые слова: *Устойчивое финансирование; МСП (малые и средние предприятия); ESG (экология, социальные вопросы и управление); Цифровизация.*

Введение

Значение устойчивого финансирования для малых и средних предприятий (МСП) считается важным для глобальной экономики. Значительная часть предприятий МСП сталкиваются с проблемами финансирования, которые препятствуют их росту и устойчивости. Традиционные финансовые системы часто не отвечают потребностям МСП, особенно в развивающихся странах с дефицитом финансирования. Однако, МСП играют ключевую роль в экономическом росте и общей занятости, составляя основу экономики, обеспечивая большинство рабочих мест и объем ВВП. В связи с этим, доступ к финансированию является критическим препятствием для многих МСП, влияя на их способность расти, внедрять инновации и вносить вклад в устойчивое экономическое развитие [1].

Коммерческие банки и небанковские финансовые учреждения навязывают условия для МСП, такие как высокие требования к обеспечению, короткие сроки погашения и высокие транзакционные издержки. Значительные препятствия в доступе к финансированию наблюдаются в странах Африки к югу от Сахары, где МСП играют решающую роль в экономическом развитии [2].

Согласно обзору, доля малого предпринимательства в ВВП Узбекистана составляет 47,5%, занятости – 74,1%, объеме экспорта товаров и услуг – 28,9%, импорта – 44,5%. В рамках программ развития семейного предпринимательства предоставляются кредиты на срок 3-7 лет, включая льготный период 6 месяцев, с годовой ставкой, превышающей основную ставку Центрального банка на 4% (в настоящее время - 17,5%) [3]. По нашему мнению, действующая ставка кредитования МСП менее привлекательная для большинства малых субъектов бизнеса.

Анализ финансовой устойчивости предприятий показывает, что на начало текущего года по республике более 203 тыс. субъектов хозяйствования прекратили деятельность, из которых 41 тыс. (20%) из-за отсутствия оборотных заимствованных средств и потребности в кредитных ресурсах. Здесь, имеется неиспользованный потенциал наращивания доли малого и среднего предпринимательства в структуре ВВП.

Согласно опыту развития развитых стран, концепция моделей устойчивого финансирования МСП должна предлагать доступ к капиталу на выгодных условиях (низкая ставка и длительный срок кредитования), учитывая экологические, социальные и управленческие критерии (ESG), способствующие экологической устойчивости и социального благополучия. Зарубежные эксперты предлагают различные эффективные инновационные модели финансирования МСП.

Обзор литературы

В частности, предлагается модель партнерства между правительством, банками и МСП для увеличения кредитных ресурсов банкам и выявления кредитоспособных заемщиков МСП с помощью программ развития навыков. Данная модель направлена на снижение риска дефолта банков, предлагая кредиты с низкими процентными ставками и без залогового обеспечения. Кроме того, внедрение цифрового финансирования и кредитного скоринга позволяет снизить транзакционные издержки и риски дефолта, делая устойчивое финансирование более доступным для МСП [4].

Опыт развития Грузии, где структура "Enterprise Georgia" играет важную роль в повышении экономической устойчивости и устойчивого роста малого бизнеса. Данный орган выступает как модератор между иностранными инвесторами и правительством посредством «единого окна», поддерживая инвесторов на протяжении всего инвестиционного процесса. Это система позволяет осуществить политику государства, международных организаций и банков по расширению возможностей МСП доступа к финансам, а также обеспечить комплексный подход к развитию рынка капитала, направленного на диверсификацию источников финансирования и снижение зависимости от банковского сектора [5].

Наглядный опыт Грузии говорит о преимуществах данного метода финансирования МСП, где используя модель финансирования и сотрудничество между правительствами, финансовыми институтами и МСП можно улучшить доступ МСП к финансированию, способствуя устойчивому экономическому развитию.

Также, с 2023 года Банком развития бизнеса Узбекистана реализуется "Комплексная программа непрерывной поддержки малого бизнеса" с условием подачи онлайн-заявлений в Центр содействия малому бизнесу. Оно оказывает помощь субъектам предпринимательства в виде финансовой помощи, гарантий и компенсаций.

К тому же, по мнению экспертов, устойчивое финансирование МСП должно подразумевать интеграцию экологических, социальных и

управленческих критериев (ESG) в финансовые продукты, поддерживая устойчивый экономический рост, снижая воздействие на окружающую среду и обеспечивая социальное благополучие [6].

В настоящее время, в отличие от крупных промышленных предприятий, МСП Узбекистана часто работают с ограниченными ресурсами (финансовые, трудовые, технологические и т.д.) и могут не иметь знаний или возможностей для внедрения критериев ESG. В связи с этим, возникает необходимость внедрение индивидуальных подходов к критериям ESG.

Ведущие учёные подчёркивают, что МСП нельзя оценивать по тем же меркам, что и крупные предприятия, исходя из объемов финансирования, их функционирования, культуры и отношений к обществу [7]. Кроме того, необходимо внедрение новых финансовых продуктов и услуг, которые стимулируют защиту экологии, такие как зеленые кредиты, облигации и инвестиционные фонды, ориентированные на ESG [8].

Кроме этого, внедрение цифровых платформ может упростить внедрение устойчивого финансирования, облегчить доступ к финансам, повысить эффективность финансовых транзакций и обеспечить сбор и анализ данных ESG. В международной практике интеграция технологий FinTech, InsurTech и блокчейна предлагает МСП новые пути доступа к устойчивому финансированию. Однако, при создании платформ по цифровизации доступа к финансам необходимо облегчить доступ к этим услугам, которое будут иметь решающее значение для экономического роста и устойчивости.

В целях цифровизации механизмов кредитования субъектов малого бизнеса Узбекистана разработана межведомственная информационная система “Единая электронная платформа программ по развитию семейного предпринимательства”. В платформе задействованы хокимияты, коммерческие банки и Центральный банк, между которыми налажен четкий процесс взаимодействия. Для каждого органа созданы персональные кабинеты по управлению зарегистрированными заявками [9].

Кроме того, важную роль устойчивого финансирования МСП играют льготные заемные ресурсы международных финансовых учреждений, которые поощряет предприятия переходить от МСП к крупным отраслям. Они предлагают различные финансовые инструменты, как экологические фонды, зеленые облигации и микрофинансирование, для реализации проектов в области солнечной энергетики, ВИЭ, управления отходами и электромобилей для достижения нулевых выбросов к 2070 году. По расчетам, для развития зеленой инфраструктуры Индии необходимо ресурсы в размере 280 млрд долл. Также, предлагаются альтернативные финансовые

ресурсы, такие как зеленые облигации (GB) и облигации социального воздействия (SIB).

Анализ системы по финансовой поддержке малого и среднего бизнеса Узбекистана требует решения следующих актуальных задач:

во-первых, создание единого институционального подхода к развитию малого и среднего бизнеса и системы оценки результативности государственных льгот и преференций, бюджетных субсидий и др. финансовой поддержки бизнеса.

во-вторых, увеличение ресурсных возможностей субъектов малого и среднего бизнеса (около 20% от общего кредитного портфеля) на получение кредитов и снижение процентных ставок, тогда как 40% от доли кредитов приходится на поддержку стратегических государственных предприятий.

в-третьих, легализация и снижение доли торговли и сферы услуг в структуре малого и среднего бизнеса, которые функционирует в “тени”.

в-четвертых, реализация доли государства в стратегических отраслях экономики, которые обладают конкурентным преимуществом по отношению к малому и среднему бизнесу, сдерживая их устойчивое развитие.

Результаты и выводы

Исходя из результатов исследования предлагается две альтернативные модели финансирования МСП. Первая модель предполагает совместный подход с участием правительства, банков и МСП, где правительство увеличивает предложение кредитных средств банкам и выявляет надежных заемщиков из числа МСП с помощью программ развития. Этот поможет снизить риски дефолта и позволить банкам предлагать МСП кредиты с более низкими процентными ставками и без обеспечения. Вторая модель расширение цифровых финансовых возможностей, используя основанные на данных оценки кредитного риска для дальнейшего снижения рисков дефолта банков и транзакционных издержек. Ожидается, что цифровизация сыграют значительную роль в демократизации доступа к устойчивому финансированию, предлагая МСП более индивидуальные и доступные финансовые продукты.

Эти модели позволят преодолеть ограничения заимствований МСП, создав инновационные механизмы финансирования для поддержки устойчивости МСП.

К тому же, для улучшения доступа МСП к устойчивому финансированию рекомендуется использовать многогранный подход, включающий реформы правительства по внедрению точных законодательных актов, которые поощряют как финансовые учреждения, так и

МСП. Программа реформ должна включать предоставление налоговых льгот, грантов, компенсаций и субсидированных кредитов для МСП, с условием реализации инновационных проектов. Финансовым учреждениям рекомендуется разрабатывать более выгодные для МСП финансовые продукты, поддерживаемые цифровыми платформами, которые упрощают процесс подачи и рассмотрения заявок субъектов МСП. Привлекать льготные и долгосрочные кредитные ресурсы международных финансовых организаций для дальнейшего перекредитования инновационных проектов МСП.

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KIBERSPORTNING (ESPORTS) XOZIRGI ZAMONDA O‘RNI VA UNING ISTIQBOLLARI

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***Annotatsiya:** Mazkur maqolada O‘zbekiston, Rossiya va boshqa davlatlarda Esportsni kirib kelishi, rivojlanishi va istiqbollari xaqida fikrlar keltirilgan. Kibersport misolida kelajakda Esport Ustozlari oldida qanday vazifa, masalalar va muammolarga uchrashlari mumkinligiga e‘tibor qaratilgan. Ushbu maqolada kibersport bilan an‘anaviy sport o‘rtisidagi o‘xshashlik va farqlari qiyosiy tahlil qilib keltirilgan.*

***Kalit so‘zlar:** Esports, shuter, strategiya, simulyator, roli o‘yin, muloqot uslubi, butkemp, Tencet, Insayder.*

Kirish. Kibersport (Esports) bu o‘zi nima? Kibersport, shuningdek, kompyuter sporti yoki elektron sport turlari deb ham ataladi, bu raqobatbardosh faoliyat turi va video o‘yinlar asosida musobaqalarga tayyorgarlik ko‘rishning maxsus amaliyoti bo‘lib, unda o‘yin boshqaruv obyektlarining o‘zaro ta’siri uchun muhit yaratadi, insondan odamga yoki jamoadan jamoaga teng sharoitlarni ta’minlaydigan musobaqalardir. Bu ko‘p davlatlarda, xususan Rossiya va O‘zbekistonda ham sport turi sifatida tan olingan.

Barcha esport fanlari fazoviy modellar, o‘yin vazifasi va esport o‘yinchilarining rivojlangan o‘yin qobiliyatlari bilan ajralib turadigan bir nechta asosiy sinflarga bo‘linadi: birinchi shaxs shuterlari (nomidan otishmalari), real vaqtda strategiyalar, avtoullov va parvoz simulyatorlari, jamoaviy rol o‘ynash taktik va strategik o‘yinlar elementlari bilan o‘yinlar va boshqalar.

Sovrin mablag‘lari bir necha million AQSH dollariga etishi mumkin. Dota 2 turniri "xalqaro" to‘lov yozuvlarni bir necha marta oshgan: 2016 yilda, 20.77 million dollar taqdim qilindi, 2017 yilda — 24.79; 696,000 AQSH dollari Intel ekstremal Masters VIIIga sarf qilindi.

Turnir o‘yinlari internetda jonli efirda namoyish etilib, millionlab auditoriyani jalb qilmoqda. Misol uchun, xalqaro 2015 finali uchun, ma’lumotlarga ko‘ra TrackDota.com , 4,6 milliondan ortiq tomoshabin tomosha qildi.

Kibersport turnirlari bir nechta asosiy toifalarga bo‘linadi, ular o‘yin hududi, modellari, o‘yin maqsadi va kibersportchilar rivojlantiradigan o‘yin ko‘nikmalari bilan farqlanadi: birinchi shaxs shuterlari, real vaqtdagi strategiyalar, avto va avia simulyatorlar, taktik va strategik elementlarga ega jamoaviy roleviy o‘yinlar va boshqalar.

Kibersport turnirlaridagi mukofot jamg'armalari bir necha million AQSH dollariga yetishi mumkin. Masalan, Dota 2 o'yini bo'yicha The International turniri bir necha bor mukofot miqdorini yangilagan: 2016 yilda 20,77 million dollar, 2017 yilda esa 24,79 million dollar sovrinli bo'lgan; Intel Extreme Masters VIII turnirida 696 000 AQSH dollari rozigrash qilingan.

Turnir o'yinlari internet orqali jonli efirda namoyish etilib, ko'p millionli auditoriyani jalb qiladi. Masalan, The International 2015 finaliga TrackDota.com ma'lumotlariga ko'ra, 4,6 milliondan ortiq tomoshabinlar kuzatgan.

Kibersport tarixi 1997 yilda birinchi kibersport ligasi CPL (Cyberathlete Professional League) tashkil etilgan vaqtda boshlangan. Ilk davrlarda «kompyuter sporti» turkumiga asosan Quake va Counter-Strike kabi shuterlar kiritilgan, ammo keyinchalik bu ro'yxat kengayib, jangovar o'yinlar (faytingi) va sport simulyatorlarini ham o'z ichiga olgan.

O'xshashliklar:

Dissiplinalar xilma-xilligi: Kibersportda ham, an'anaviy sportda ham turli yo'nalish va o'yin turlari bor.

Turnirlar va musobaqalar: Har ikkisida ham xalqaro va mahalliy turnirlar o'tkaziladi.

Sportchilar/o'yinchilar mashhurligi: Ikkala sohada ham sportchilar va o'yinchilar o'z muxlislari orasida mashhur bo'lib, ularni yaxshi tanishadi.

Qoidalarining mavjudligi: O'zbekiston va Rossiya kabi davlatlarda kibersportda, an'anaviy sportga o'xshagan rasmiy qoidalar mavjud.

Media tarkibi: Ikkala sohada ham media orqali yoritilish va targ'ibot kuchli.

Muxlislar bazasi: Kibersportda ham, an'anaviy sportda ham o'zining sodiq muxlislari va fanatlari mavjud.

Farqlar:

Fizik tayyorgarlik: An'anaviy sportda jismoniy tayyorgarlik muhim rol o'ynaydi, kibersportda esa asosiy e'tibor aqliy ko'nikmalar va reaksiyaga qaratiladi.

Texnik vositalar: Kibersport o'yinlari kompyuter yoki maxsus qurilmalarda o'tkaziladi, an'anaviy sport esa jismoniy harakatlar va sport jihozlariga bog'liq.

Tan olinganlik darajasi: An'anaviy sport dunyo miqyosida katta qadrga ega bo'lgani holda, kibersport yaqin yillardagina rasman tan olindi va rivojlanmoqda.

Kibersport dissiplinalarining turlariga:

Jamoaviy (Dota 2, CS, League of Legends, Heroes of the Storm, PUBG va boshqalar).

Yakka (FIFA, HearthStone, StarCraft 2 va boshqalar). Ammo, tashkilot qaroridan kelib chiqib, yakka kibersport dissiplinalari uchun ham jamoalar tuzilishi mumkin.

Jamoalar erkin rejimda yig'ilishi mumkin — ko'pincha bu havaskor jamoalar bo'lib, ular o'zlari uchun yoki yarim professional darajada o'ynashadi. Bunday jamoalar «do'stlar jamoasi» deb ataladi, ular ba'zan shu shaklda professional darajaga chiqishlari mumkin va ajoyib natijalar ko'rsatishadi, chunki jamoa a'zolari avvaldan do'stona munosabatlarda bo'ladi va bu albatta o'yin ko'nikmalaridan tashqari muhim ahamiyatga ega.

Professional jamoa uchun alohida o'yinchini topish yoki uni boshidan tuzish belgilangan tartibda va o'ziga xos sxemaga ko'ra amalga oshiriladi.

Jamoa menejeri murabbiy bilan birgalikda transferga qo'yilgan o'yinchilarni izlaydi, yakka o'yinchilarni kuzatadi yoki o'yinchilar o'z nomzodlarini taklif qilishlari mumkin.

Agar har ikkala tomon ham kelishuvga erishsa, o'yinchi jamoaga tanishtiriladi va ular birgalikda o'ynashga harakat qilishadi.

Agar natijalar har ikkala tomonni ham qoniqtirsa, menejer o'yinchining oldingi tashkiloti bilan uning shartnomasini joriy jamoaga o'tkazish haqida kelishadi va yangi jamoa a'zosi uchun eski tashkilot tomonidan belgilangan summa to'lanadi.

Keyin o'yinchi bilan joriy tashkilot o'rtasida to'g'ridan-to'g'ri shartnoma tuziladi. Shu vaqtdan boshlab o'yinchi yangi jamoa tarkibiga kiradi.

Jamoani birlashtirishdagi to'siqlar:

Til to'sig'i,

Xarakter va temperamentning o'ziga xosliklari,

Mentalitetlar o'rtasidagi farqlar,

Ta'lim usullari, taktika qurish, o'yinni olib borish usullari borasidagi turli xil qarashlar,

Muloqot uslubi,

Yosh to'sig'i,

O'yinchilar o'rtasidagi shaxsiy mojarolar asosidagi to'siqlar.

Jamoani birlashtirish usullari:

Butkemp (birgalikda o'quv-mashg'ulotlar lageri),

Psixolog bilan ishlash va treninglar,

Ish atmosferasidan tashqaridagi muloqot.

Butkemp (inglizcha Bootcamp — «o'quv lageri») — bu jamoalar ma'lum vaqt davomida yashash va mashq qilish uchun borib, katta turnirlar oldidan yoki kerakli paytlarda o'tkaziladigan o'quv mashg'ulotlari uchun maxsus joy.

Kibersportda psixologlar:

Hozirda kibersportda psixologlarni jalb qilish amaliyoti hali rivojlanish bosqichida. O'yinchilar ko'pincha psixologlar bilan ishlashdan bosh tortishadi, buning kerak emasligiga ishonib, vaqtini behuda sarflash deb o'ylashadi. Ba'zilari

esa, aksincha, psixologga murojaat qilishni so‘rab, menejer bilan kelishuvga intilishadi, chunki ularga bunday yordam kerakligini tushunishadi.

Ammo jamoalar o‘z muammolari ustida ishlashga katta xohish bildirsa ham, ba‘zan psixolog yordami samarasiz bo‘lib chiqishi mumkin, sababi, inson bu sohani yaxshi tushunmaydi va muammoning mohiyatini to‘liq anglamaydi.

Menejerlar va murabbiylar: jamoaviy hamkorlikdagi ularning roli

Murabbiylar jamoalarga o‘qish va mashq jarayonida yordam berish uchun kerak. Ular jamoani tomosha qilib, xato va kamchiliklarni kuzatib, o‘yinchilarga o‘z zaifliklari ustida ishlashga yordam beradi va ularni yo‘l-yo‘riq ko‘rsatadi. Shuningdek, murabbiylar o‘yinchilar bilan oshkora muloqot qiladi va ko‘p vaqtni ular bilan o‘tkazadi, ko‘pincha do‘stona munosabatlar o‘rnatadi.

Murabbiylar jamoani qo‘llab-quvvatlaydi va ularning barcha g‘alabalari va mag‘lubiyatlarini birga boshdan kechiradi, konfliktlarni yumshatishga yordam beradi va jamoa ichidagi muloqotni yaxshilaydi. Qo‘pincha murabbiy muvaffaqiyatli professional karyerani tugatgan bivoqting o‘yinchi bo‘lib, hali yangi mutaxassislar uchun tajriba va bilimga ega. Shuning uchun u yosh o‘yinchilar uchun ideal murabbiy bo‘ladi.

Menejerlar jamoa tarkibiga o‘yinchilarni topish, tashkilotchilik faoliyati bilan shug‘ullanishadi: butkemplarga yig‘ilishlar, mashqlarni tashkil etish, o‘yinchilar uchun forma buyurtma qilish, sponsorlar va ommaviy axborot vositalari bilan muzokaralar o‘tkazish va boshqalar. Menejer jamoa bilan ko‘p vaqt o‘tkazadi, shuning uchun jamoalar ko‘pincha menejerlari bilan yaxshi do‘stona munosabatlarda bo‘ladi. Albatta, bu katta plyus, chunki nizo va tushunmovchiliklar kamayadi, o‘yinchilar o‘z menejerlari bilan hosiyatli muloqotda bo‘lishadi va ular o‘zlarini noqulayliklarsiz his qilishadi.

Rossiya dunyoda birinchi davlat bo‘lib kibersportni rasmiy sport turi sifatida tan olgan. Bu 2001 yil 25 iyul kuni Rossiyaning Davlat sport qo‘mitasi rahbari tomonidan qabul qilingan qaror orqali amalga oshdi. Ammo 2006 yil iyulda kibersport umumrossiya sport turlari reyestridan chiqarildi, chunki u ro‘yxatga kirish uchun zarur bo‘lgan talablarga javob bermadi. Undan o‘n yil o‘tib — 2016 yil 7 iyun kuni — Rossiyada kibersport yana rasmiy sport turi sifatida tan olindi. Kompyuter sport turlari umumrossiya sport turlari reyestrining birinchi bo‘limiga kiritildi. Bu bo‘limda tan olingan, ammo milliy va «jalpirossiya miqyosida rivojlantirilayotgan» sport turlari joylashtirildi.

2023 yildan boshlab, respublikamizda kibersport bo‘yicha bir necha musobaqalar o‘tkazila boshladi. O‘zbekiston prezidenti Shavkat Mirziyoyev farmoni bilan kibersportning rivojlanishi va ommalashtirilishi bo‘yicha chora-tadbirlar belgilab berildi. Bu choralar IT-industriyasini yangi kadrlar bilan ta‘minlashga yordam beradi.

Kibersport respublikada rasmiy sport turi sifatida tan olingan. Kibersportning rivojlanish yoʻnalishlari quyidagilarni oʻz ichiga oladi:

Professional sportchilar, murabbiylar, sudyalar va kommentatorlar uchun taʼlim tizimini joriy qilish;

Respublika va xalqaro chempionatlar va turnirlarni tashkil etish, nufuzli xalqaro va mintaqaviy musobaqalarda qatnashish;

Kibersport turlari boʻyicha ilmiy va oʻquv-uslubiy qoʻllanmalar nashr etish;

Sohaga toʻgʻridan-toʻgʻri investitsiyalar jalb qilish;

Kibersportga oid ijobiy jamoat fikrini shakllantirish.

2023 yildan boshlab, har yili mamlakatda turli kibersport turlari boʻyicha quyidagi musobaqalar oʻtkaziladi:

Aprel oyida – respublika chempionati Uzbekistan Esports Championship;

Dekabr oyida – Oʻzbekiston Respublikasi Hukumatining Kubogi turniri;

Iyun oyida – Yoshlar Kubogi turniri.

2023 yilda Uzbekistan Esports Championship respublika chempionatini oʻtkazish bilan bogʻliq barcha xarajatlar IKT rivojlantirish fondi (1,5 milliard sum) va Yoshlar agentligiga qarashli byudjetdan tashqari fond (2 milliard sum) hisobidan toʻlandi.

Kibersportning rivojlanishi boʻyicha chora-tadbirlar quyidagilarni oʻz ichiga oladi:

Kibersport ligasi va musobaqalarni tizimli asosda tashkil qilish;

Kibersportchilarning sogʻligiga salbiy taʼsir koʻrsatuvchi omillarni kamaytirish;

Kibersportda ping muammosini bosqichma-bosqich hal qilish;

Jahon bozorida raqobatlashadigan kibersport oʻyinlarini kommersializatsiya qilish;

Kibersport bilan shugʻullanuvchi yoshlarda sogʻlom sport madaniyatini shakllantirish, qonunbuzarlik va antisotsial harakatlarni oldini olish.

Shuningdek, 2023/2024 oʻquv yilidan boshlab Oʻzbekiston davlat jismoniy tarbiya va sport universitetida bakalavriat yoʻnalishi sifatida "Sport faoliyati: kibersport" yoʻnalishi ochildi. Oʻqish muddati 3 yilni tashkil etadi.

Kibersport boʻyicha respublika chempionatining gʻoliblari (1-oʻrin) professional (ijodiy) imtihonlarni topshirishdan ozod qilinadi va maksimal ballga tenglashtirildi.

XX asrning oxirida kompyuter oʻyinlariga boʻlgan qiziqish eng yaxshi holatda xobbi sifatida qaralsa, keyingi oʻn-besh yilda geyming xobbi tufayli sport dissiplinasiga aylanib bormoqda.

Kibersport assotsiatsiyalari bugungi kunda dunyoning turli davlatlarida faoliyat koʻrsatadi. Oʻzbekiston ham, bundan istisno emas. Milliy Statagentlik tadqiqotlariga koʻra, mamlakat aholisining taxminan uchdan bir qismi kompyuter

o'yinlari bilan shug'ullanadi. Kibersportchilar va professional geymerlar soni FACEIT ma'lumotlariga ko'ra 32 mingdan oshdi.

2022 yil kuzda O'zbekiston prezidentining «Kibersport turlarini rivojlantirish va keng ommalashtirish bo'yicha qo'shimcha chora-tadbirlar» haqidagi qaror (16.11.2022 yildagi PQ-423-son) qabul qilindi. Ushbu hujjatda kibersport mamlakatimizda rasmiy sport turi sifatida tan olinganligi va uni rivojlantirish choralari ko'rilmogda.

O'zbekiston kibersport assotsiatsiyasi bu voqea industriya uchun asosiy ahamiyatga ega. Assotsiatsiya ijrochi direktori Yevgeniy Li «Davlat kibersportni alohida sport turi sifatida qabul qilgani va bizga sohani rivojlantirishda faol yordam bergani uchun juda mamnunmiz», — dedi.

Milliy kibersport assotsiatsiyasi bugungi kunda bir necha yo'nalishlar bo'yicha faoliyat yuritmoqda. Birinchi yo'nalish — mahalliy, xususiy va xalqaro turnirlarni o'tkazish. Tadbirlar kalendarida turli dissiplinalar bo'yicha 48 musobaqa mavjud.

Ikkinchi yo'nalish — xorijiy o'yin jamoalari bilan aloqalarni o'rnatish va O'zbekiston jamoasini xorijiy turnirlarda qatnashishini tashkil etish. Shuningdek, struktura kibersportning nufuzini oshirish, mahalliy hokimiyat organlari, lokal va xalqaro brendlar bilan hamkorlikni rivojlantirish bilan shug'ullanadi.

O'zbekistonda kibersportni rivojlantirishdagi asosiy muammo, Yevgeniy Lining fikricha, o'yinchilar uchun ekosistema yo'qligidir.

«Bu yo'nalishda birinchi qadamlar tashlandi, ammo kibersport uchun infratuzilmani bosqichma-bosqich yaratishni davom ettirishimiz kerak», — dedi u.

YE.Lining ta'kidlashicha, o'yinlar yaratuvchilari bilan serverlarni O'zbekiston hududida o'rnatish bo'yicha tizimli kelishuvlar o'rnatish zarur. Hozirda mamlakatimizdan bo'lgan geymerlar Rossiya yoki Yevropa serverlari orqali o'ynashga majbur, bu esa taktninning (ping) uzayishiga keltiradi, ya'ni ma'lumotlarni kompyuterdan serverga va qaytishga vaqti uzayadi.

“Masalan, agar takti 100 bo'lsa, raqibimiz bizning o'yinchini taxminan 0,5 soniya oldin ko'radi. Bu kibersportda sezilarli afzallik”.

Ekosistema qurish uchun ikkinchi shart sifatida YE.Li kibersportchilarni o'qitish imkoniyatlarini kengaytirishni tilga oldi: «Bizning o'yinchilarimiz o'zlariga qarshi doimiy raqobatlashayotgan bo'lsa-da, xorijiy tajribani olish kerak». Bu tajribani xorijiy murabbiylar, analitiklar va geymerlar translyatsiya qilishi mumkin.

Nihoyat, O'zbekiston kibersportchilari turnirlarda qatnashish orqali yaxshiroq bo'lishi mumkin — mahalliy yoki xalqaro turnirlarda. Bu yerda o'yinchilar yangi tajriba oladi, mavjud bilim va ko'nikmalarini qo'llaydi.

«Barcha ushbu yo'nalishlarda biz faol ish olib bormoqdamiz: o'yin yaratuvchilari bilan suhbatlashamiz va katta miqyosdagi turnirlarni tashkil etamiz.

Bu yil bizga Tencent Games kompaniyasining vakillari keldi. Ular bilan serverlarni joylashtirish, kibersportni O‘zbekistonda ilgari surish va ommalashtirish bo‘yicha masalalarni muhokama qildik», — dedi assotsiatsiya rahbari.

Tencent Games'ning MDH davlatlaridagi nashriyot guruhi rahbari Xisham Nuxu O‘zbekistonda kibersportning barcha zamonlardan ko‘ra ko‘proq talabga ega bo‘layotganiga ishonadi. Kompaniyaning o‘zi ham kibersportni ommalashtirishga o‘z hissasini qo‘shmoqda: Tencent markaziy Osiyoda yurtdoshlarimiz orasida eng mashhur bo‘lgan PUBG Mobile o‘yini bo‘yicha bir necha onlayn-turnirlar tashkil etildi.

Tencent O‘zbekiston kibersport assotsiatsiyasi, mahalliy hokimiyatlar, kompaniyalar va mashhur shaxslar bilan hamkorlik qiladi, infratuzilmani yaxshilash va internetning dastur va tezligini oshirish bo‘yicha ishlar olib bormoqda. 2022 yilda nashriyot guruhi mamlakatning 16 universiteti o‘rtasida birinchi o‘yin turniri — Tashkent Campus Tournament tashkil etishga yordam berdi.

X.Nuxu Tencent o‘yin jamoasi uchun turnir litsenziyasini olish jarayonini yengillashtirganini ma’lum qildi. Buni tashkilotlar ham, shaxsiy shaxslar ham amalga oshirishlari mumkin.

Kibersport dunyoda investitsiyalarga bog‘liq, biznes yo‘nalishi sifatida ommalashgan. Buning dalili sifatida xalqaro turnirlarning ko‘plab hamkorlarini ko‘rib chiqish mumkin. O‘zbekistonda esa bu tendensiya hozircha shunday yaqqol namoyon emas.

«Bizda kompaniyalar va investorlar hozircha kibersportga faol qiziqish bildirmayapti, ammo yaqin vaqtlarda vaziyat o‘zgaradi deb ishonamiz», — dedi Yevgeniy Li. Uning ta’kidlashicha, O‘zbekiston biznes doiralarida industriyaning perspektivalari haqida ma’lumotlar oshayotgani aniq.

Assotsiatsiya rahbariga ko‘ra, hozirgi kunda kibersport mamlakatda shaxsiy investorlar tomonidan qo‘llab-quvvatlanmoqda, ular xorijda bo‘lib, bu sohadagi investitsiyalarning samaradorligini ko‘rganlar. Shuningdek, YE.Li Tencent'ning O‘zbekistonda kibersport industriyasini rivojlantirish bo‘yicha amalga oshirayotgan davlat qo‘llab-quvvatlashini va say-harakatlarini muhim deb hisoblaydi.

Profil assotsiatsiyasi rahbari O‘zbekistonda kibersportning katta imkoniyatlarga ega ekanini, bu katta va yosh aholi tomonidan ta’minlanishini ishonadi.

«Insayder ma’lumotlariga ko‘ra, faqatgina bir kibersport o‘yinida kunga 700 mingdan ortiq unikal foydalanuvchilar ishtirok etadi va oyiga 1,5 mlnga yaqin odam qatnashadi», — dedi Li.

Kybersport turnirlarining translyatsiyalari millionlab tomoshabinlarni yig'adi va oxvat darajasi bo'yicha bu tadbirlar «o'tkir sport turlaridan oldinga chiqadi», deb qo'shimcha qildi u.

O'zbekistonning professional geymerlari natijalariga kelsak, muvaffaqiyatlar ham bor. Kybersportchilar bir necha turnirlarda g'alaba qozonishdi va «yuz minglab dollar mukofot» ishg'ol qilishdi.

«Shu sababli, bugun kibersportni rad etish va uning ahamiyatini inkor qilish qiyin. Faqatgina yoshlarimizning say-harakatlarini to'g'ri yo'nalishga qaratish kerak», — deb xulosa qildi Li.

Xulosa: Yuqorida keltirilgan ma'lumotlarga asoslanib quyidagi xulosaga kelishimiz mumkin.

Xozirda Investitsiyalar, sanoat va savdo vazirligi bilan birgalikda zamonaviy kibersport arenalarini tashkil qilish zarur, ularni kerakli asbob-uskunalar bilan jihozlash, kibersport turlari bo'yicha xalqaro turnirlarni o'tkazish uchun xalqaro tashkilotlar grantlari, texnik ko'mak va boshqa tashqi beg'araz ko'mak mablag'larini jalb qilish choralarini ko'rish dolzarb masalalardan hisoblanadi.

Olimpiya shaharchasi obyektlarini loyihalash, qurilish-montaj, jihozlash va moliyalashtirish ishlarini muvofiqlashtirish bo'yicha ishchi guruhlar tuzish zarur.

Kybersport turlari bo'yicha chempionatlar, turnirlar va musobaqalarni o'tkazish uchun zamonaviy kiberzonani tashkil qilish kerak.

Bunda, kiberzona, shu jumladan quyidagilardan iborat bo'lishi mumkin:

chempionatlar, turnirlar va musobaqalar o'tkaziladigan maxsus zal;

mobil kibersport mashg'ulotlari zali;

server uskunolari saqlanadigan joy;

o'quv-mashg'ulot markazi;

matbuot xizmati uchun (chempionatlar, turnirlar va musobaqalarni to'g'ridan-to'g'ri yoritish, ssenaristlar, rejissyorlar, tahlilchilar va sharhlovchilar) studiya;

kybersport mahsulotlari va tovarlarini reklama hamda realizatsiya qilish shoxobchasini yaratish zarur.

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BENEFITS OF DIGITAL TECHNOLOGIES IN ENGLISH CLASSES

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Abstract:*In the rapidly evolving educational landscape, the integration of digital technologies in English classes has transformed the way language is taught and learned. This article explores the myriad benefits of incorporating digital tools into English language instruction, emphasizing enhanced engagement, personalized learning experiences, access to vast resources, and the development of critical 21st-century skills. By leveraging digital technologies, educators can foster a more interactive and inclusive learning environment that meets the diverse needs of students and prepares them for effective communication in a globalized world.*

Key words: *language, integration, digital technology, digital tools, interactive learning, learning environment, effective communication.*

The advent of digital technologies has revolutionized various sectors, and education is no exception. In English classes, the utilization of technology has become increasingly prevalent, offering both educators and students new and innovative ways to engage with the language. From multimedia resources to online collaboration platforms, digital tools not only enhance the teaching and learning experience but also provide students with essential skills for the future. This article delves into the benefits of digital technologies in English classes, highlighting how they contribute to improved language proficiency and comprehensive literacy skills. Enhanced Engagement and Motivation. One of the most significant benefits of digital technologies in English classes is the increased engagement and motivation they provide students. Traditional teaching methods can often feel monotonous; however, interactive tools such as educational software, gamification, and multimedia presentations can create a vibrant learning atmosphere. These technologies allow students to participate actively in lessons, making learning a more enjoyable and dynamic process. For example, language learning apps and video conferencing platforms can introduce gamified learning experiences, encouraging students to engage with the material in novel ways. Interactive exercises, quizzes, and games can stimulate healthy competition and collaboration among peers, driving motivation and enthusiasm for learning English.

Personalized Learning Experiences. Digital technologies facilitate personalized learning experiences that cater to individual student needs, learning styles, and paces. With access to online resources, such as e-books, learning

platforms, and video tutorials, students can tailor their learning journeys to suit their preferences. This flexibility allows learners to explore topics of interest at their own pace, enhancing comprehension and retention.

Additionally, educators can utilize data analytics to track student progress and identify areas needing improvement. By employing adaptive learning technologies, teachers can provide targeted support, ensuring that each student receives the guidance required to excel in their language acquisition. Utilizing digital technology in the classroom can enhance learning experiences, improve student engagement, and streamline classroom management. Below are various methods, tools, and best practices for effectively incorporating digital technology into your teaching.

1. Interactive Whiteboards

- Usage: Use interactive whiteboards (e.g., SMART Boards) to display multimedia content, create interactive lessons, and encourage student participation.
- Activities: Collaborative brainstorming, live quizzes, and problem-solving exercises.

2. Learning Management Systems (LMS)

- Tools: Platforms like Google Classroom, Moodle, and Canvas.
- Usage: Distribute assignments, track student progress, and facilitate discussions.
- Benefit: Centralized access to resources and streamlined communications.

3. Educational Apps and Software

- Examples: Kahoot! (quizzes), Nearpod (interactive lessons), and Quizlet (study tools).
- Usage: Enhance learning through gamification, collaborative activities, and formative assessments.

4. Flipped Classroom Model

- Method: Assign video lectures or reading at home and use class time for discussion and hands-on activities.
- Tools: Ed puzzle for tracking video engagement and Google Forms for feedback.

5. Cloud-Based Collaboration Tools

- Examples: Google Workspace (Docs, Sheets, Slides) and Microsoft Office 365.
- Usage: Foster collaboration on group projects, peer editing, and real-time feedback.

6. Online Simulations and Virtual Labs

- Platforms: PhET, Labster, and ExploreLearning Gizmos.

- Usage: Conduct experiments or simulations that may be too costly or impossible in a traditional classroom setting.

7. Multimedia Presentations

- Tools: Prezi, Canva, and Adobe Spark.

- Usage: Encourage students to create engaging presentations that incorporate various media formats (video, audio, graphics).

8. Digital Assessment Tools

- Examples: Socrative, Google Forms, and Poll Everywhere.

- Usage: Conduct real-time assessments, polls, and surveys to gauge understanding and gather feedback.

9. Podcasts and Video Creation

- Tools: Anchor (podcast creation) and WeVideo (video editing).

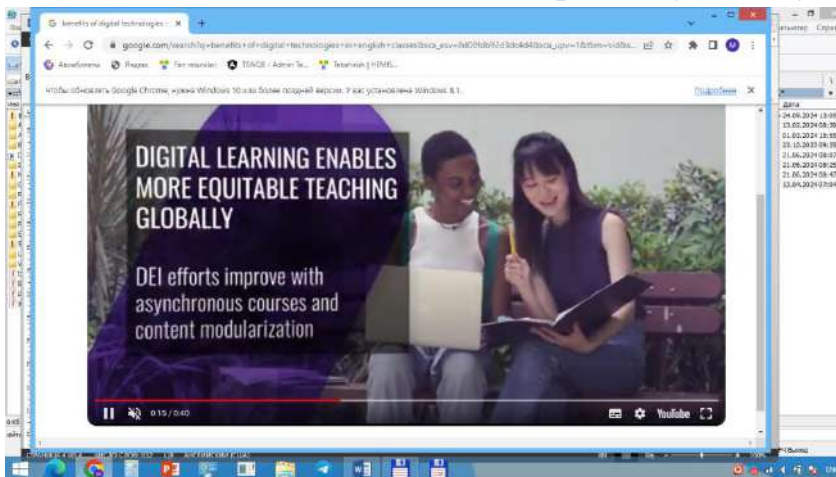
- Activity: Assign projects where students create their own podcasts or videos as a way to explore topics creatively.

10. Gamification of Learning

- Method: Incorporate game elements (points, badges, leaderboards) in learning activities to boost motivation.

- Tools: Classcraft and Edmodo.

Above mentioned activities save time and encourages teamwork. While doing these activities, students communicate effectively with each other without embarrassment, and most importantly, they feel free themselves.



To sum up digital tools can facilitate spoken production activities as students can easily develop their own audio and/or visual material in a foreign language and share it as widely as they like. For example, student podcasting has a positive effect on performance in speaking and listening assessments, and on learner engagement as students see it as an authentic and fun learning experience. Furthermore digital learning helps students learn regardless of their position in life. Because digital technology is a part of our lives these days in every aspect.

Therefore, it would be appropriate if we, the teachers, used information technology to efficiently organize our lessons, as is already required.

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DIGITIZATION IN ECONOMICS

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Abstract: *Digitization is the process by which technology lowers the costs of storing, sharing, and analyzing data. This has changed how consumers behave, how industrial activity is organized, and how governments operate. The economics of digitization exists as a distinct field of economics for two reasons.*

Keywords: *labor economics, intellectual property, marginal costs, implementation, file-sharing*

Research in the economics of digitization touches on several fields of economics including industrial organization, labor economics, and intellectual property. Consequently, many of the contributions to the economics of digitization have also found an intellectual home in these fields. An underlying theme in much of the work in the field is that existing government regulation of copyright, security, and antitrust is inappropriate in the modern world. For example, information goods, such as news articles and movies, now have zero marginal costs of production and sharing. This has made the redistribution without permission common and has increased competition between providers of information goods. Research in the economics of digitization studies how policy should adapt in response to these changes.

The Internet is a multi-layered network which is operated by a variety of participants. The Internet has come to mean a combination of standards, networks,

and web applications (such as streaming and file-sharing), among other components, that have accumulated around networking technology. The emergence of the Internet coincided with the growth of a new type of organizational structure, the standards committee.[1][2] Standards committees are responsible for designing critical standards for the Internet such as TCP/IP, HTML, and CSS. These committees are composed of representatives from firms, academia, and non-profit organizations. Their goal is to make decisions that advance technology while retaining interoperability between Internet components. Economists are interested in how these organizational structures make decisions and whether those decisions are optimal.

Digitization has partially or fully replaced many tasks that were previously done by human laborers. At the same time, computers have made some workers much more productive. Economists are interested in understanding how these two forces interact in determining labor market outcomes. For example, a large literature studies the magnitude and causes of skill-biased technical change, the process by which technology improves wages for educated workers. Alternatively, Autor (2014)[3] describes a framework for classifying jobs into those more or less prone to replacement by computers. Furthermore, the use of information technology only increases productivity when it's complemented by organization changes. For example, Garicano and Heaton (2010)[4] show that IT increases the productivity of police departments only when those police departments increased training and expanded support personnel. Work by Bresnahan, Brynjolfsson and Hitt (2002) [5] found evidence of organizational complementarities with information technology and boosted the demand for skilled labor. Another consequence of digitization is that it has drastically reduced the costs of communication between workers across different organizations and locations. This has led to a change in the geographic and contractual organization of production. Economists are interested in the magnitude of this change and its effect on local labor markets. A recent study found that the potential of manufacturing sector jobs to be offshored did not reduce wages in the US. However, survey evidence suggests that 25% of American jobs are potentially offshorable in the future.[6] Online labor market platforms like Odesk and Amazon Mechanical Turk represent a particularly interesting form of labor production arising out of digitization. Economists who study these platforms are interested in how they compete with or complement more traditional firms. Another active area of research is how to incentivize workers on these platforms to produce more efficiently.[7] While workers engaged in routine, lower-skill tasks such as data entry are particularly susceptible to competition from online labor markets, creative professions are also

exposed, as many online platforms now provide opportunities to crowdsource creative work.

Goldfarb and Tucker (2011a)[8] wrote the first paper to empirically study the economic effects of privacy regulation for the advertising-supported Internet. The implementation of privacy regulation in Europe has made it more difficult for firms to collect and use consumer browsing data to target their ads more accurately; the field test data shows these policies are associated with a 65 percent reduction in the influence banner ads have on purchase intent. As well as this main effect, their research also suggests that privacy regulation might change the web landscape in unanticipated ways, with advertising becoming even more intrusive. It also might lead marketers to shift their media buys away from newspapers because of difficulties in finding relevant advertising to show.

There are many other policies related to digitization that are of interest to economists. For example, digitization may affect government effectiveness and accountability.[9] Digitization also makes it easier for firms in one jurisdiction to supply consumers in another. This creates challenges for tax enforcement.[10] Another issue is that companies with new, Internet based business models, such as Airbnb and Uber, pose challenges for regulation aimed at traditional service providers. Many safety and quality enforcement regulations may no longer be necessary with the advent of online reputation systems. Lastly, digitization is of great importance to health care policy. For example, electronic medical records have the potential to make healthcare more effective but pose challenges to privacy policy.[11][12]

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FROM THE HISTORY OF PHILOSOPHICAL AND IMAGINARY HYPOTHESES OF ALISHER NAVOIY IN THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES

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Abstract. *The developed countries of the world, realizing the artificial intelligence and its benefits, include the expansion of this field in their state programs. Artificial intelligence did not just appear. It is based on a stage of historical development. Alisher Navoi, one of the eastern thinkers, and the examples of artificial intelligence in his works are also important at this stage. The techniques and mechanisms described in many of Navoi's works serve the interests of mankind today. In their time, that is, in the 15th century, these were the products of magical imagination. The fact that the techniques of Navoi's imagination are described in his works based on precise mathematical sciences proves that he has a high level of intellectual-erudite. Alisher Navoi's products of artificial intelligence, such as television, elevator, and traffic lights, serve for the development of people's lives. In Alisher Navoi's works, the new technologies that are a product of imagination are common things for all people in the twenty-first century. Philosophically speaking, this article points out that things that are considered simple today were once a dream for people.*

Keywords. *Hypothesis, imagination, mechanism, mathematics, progress.*

Introduction. Artificial intelligence has become one of the most important technologies in the world today. At the beginning of the last century, most of the scenes that we could see only in movies and various science fiction novels are becoming a reality with the introduction of artificial intelligence into our lives. According to the data provided by the UN, by 2022, about a quarter of the world's gross domestic product will be transferred to digital technologies. This will further accelerate the development of scientific innovations based on artificial intelligence. Today in world practice, countries such as Canada, Singapore, the United Arab Emirates, Finland, Japan, China, Italy, Tunisia, the United Kingdom, the United States, Sweden, Mexico, the European Union, Kenya, Denmark, France, Australia, the Republic of Korea, India and Germany announced strategies for the development of artificial intelligence. This development, like other areas, has its own stages of historical formation. For example, it is not a secret that the basis of the fundamental education system in the world is connected with the great scholars who came out in the East. Farabi's [1] philosophy, al-Khorazmi's [2] mathematics, Beruni's [3] geology, and Ibn Sina's [4] medicine is deeply studied in the 20th century high-level science centers. At the same time, the above-mentioned scholars made innovations in the fields of astronomy, wisdom, chemistry, and mathematics in a continuous connection with philosophy, music, fiction, and, so to speak, education.

In this article, the poet and politician Alisher Navoi, who lived and created in the 15th century, studied and analyzed the imaginary assumptions that were the basis for the development of artificial intelligence. Alisher Navoi's "Hiloliya", "Badoe' ul-bidoya" ("The beginning of art"), "Khamsa" epic, "Tarihi muluki Ajam", "Holoti Sayyid Hasan Ardasher", "Risolai problem", "Majolis un-nafois", "Munshaat", "Mezon ul-Avzon", "Holoti Pahlavon Muhammad", "Naseem ul-Muhabbat", "Devony Foni", "Lisaon ut-Tayr", "Muhokamat ul-Lughatayn", "Mahbub ul-Qulub", "There are invaluable works such as Nazm ul-jawahir", "Tarihi anbiyo wa hukamo", "Siroj ul-muslimin", "Arbain" [4.1.]. Although they were written six centuries ago, today the author's inventions in the work are used as a normal phenomenon in people's lives.

Materials and methods

The term artificial intelligence was first proposed at the Dortmund conference in 1956 by John McCarthy and his colleagues Marvin Lee Minsky, Nathaniel Rochester, Claude Shannon. Today, artificial intelligence is effectively used in healthcare, energy, mining, agriculture, education, machine improvement, voice assistants, online chat and communication, and software development. However, when we read the works of Alisher Navoi, written in the 15th century,

when the concept of artificial intelligence was not popular, we can be sure that his intelligence was strong and unique. Translated from Latin, the concept of intellect means knowledge, understanding, perception, intelligence.

Alisher Navoi's intellectual ability was far ahead of his contemporaries. We analyze his high ability to accurately reflect and change life and environment in the mind, to think, read and learn, to know the world and to accept social experience through his intellectual examples given in his works. Alisher Navoi wrote about the scientific excellence of his epics and lyrical works during his lifetime: A. Valikhonov says in the chapter "Mathematics in the Ocean of Waves": "Navoi's writings are logical - "speaking", i.e., rational numbers; arqomi asam - "dumb", i.e., irrational numbers; jazr - degree base or root; he uses pure mathematical terminology such as the number of the root or the root, the behavior is straight – perpendicular [5.1. P. 33.].

Alisher Navoi applied his knowledge in the field of exact sciences in his works and put them into practice. According to him, the degree of accuracy in the ratio of the length of the circle to the diameter was considered very important in the construction of towers and domes. Ghiyasiddin Jamshid ibn Mas'ud Koshi developed a more precise value of the ratio. Koshi also recommends a verse to remember these numbers and cites his text. Amonillo Valikhonov writes: "Koshi recommends the following Arabic poem:

Va bahsha haji saza zattahhavhu,
Muhitun li qutrin huva – siani minhu.

The first of these two verses consist only of letters representing the above seventeen numbers by means of the abjad table.

It is known that Navoi recommended this number for the value of π to the architects based on the knowledge he gained in Samarkand and advised them to memorize the above poem [6.2. P.33.].

Now let's consider, what kind of concepts can a poet who knows the subtle and mysterious aspects of mathematics and uses them widely in life and artistic creation have in other areas of science? A good answer to our question was given by Syed Bahrom Azizov, an expert in the secrets of the universe, in his scientific study called "Ayfalak" [7.1. P.25.]. In the examples and evidence given by this scientist, it is proved that Alisher Navoi used dozens of information about space in his ghazals, epics in "Khamsa" and "Lison ut-Tair". Especially interesting are the comments about suturlob. Sutturlob astronomical instrument. The diameter will be from 10 centimeters to 50 centimeters. Navoi mentions suturlob, but the poet's expressions give such large and clear images of celestial bodies that they contain

information that can only be seen with a telescope invented almost 100 years after "Khamsa".

E. E. Bertels, in the monograph "Navoi" written as early as 1948, wrote that in the second story of the saga "Sabai Sayyor" the eight steps of the throne on which Zayd can walk in any direction (remember the stage movement in the theater today. The author) move by themselves: "This represents Navoi's interests - technical fantasy A strange picture was made in our day: "Navoi's throne combines a car and an escalator." [8.1. P.204.] Indeed, the reader who reads the works of Alisher Navoi will be amazed by the breadth of his fantasy world. Throughout his life, the poet did not stop learning, thinking, fantasizing, and discovering strange images. This quality gave permanent life to the works of great genius. Imagination allowed the poet to walk in the world of magical phenomena. In his works, he embodied the magical things in his mind. A glass that reflects the universe allows you to imagine an iron man - a robot, an escalator, submarines. In the development of modern science, the process of creation of scientific and technical discoveries mainly consists of three stages.

First of all, it is necessary to come up with the idea of discovery. Second, its project, technical solution is developed. Third, the project is implemented. In the oral works of the peoples of the world, including Uzbek fairy tales and epics, the ideas of traveling long distances at speed, being aware of the fate of the person you are worried about, talking to him if possible, living a full life, creating miracles that have not been seen or heard in farming, handicrafts, have existed since ancient times. was a tradition. With the development of science and technology in life, imaginary events have found and are finding their solution.

The fulfillment of human dreams has become a factor that ensures the development of mankind. From cotton pickers to combine harvesters, from cell phones to the Internet, are they not the product of the imagination of the miracle called "man"? The higher the level of competence and knowledge, the higher the level of reasoning.

Consequently, the exaggerated expressions depicted in Alisher Navoi's work were somehow scientifically based, and most of them found their solution in the 20th and 21st centuries.

Alisher Navoi says in the 594th ghazal of "Favoyid ul-kibar" book:

Muhandise topayu egnima qanot yosatay

Uchub havosida qushlar aro o'zomni qotay [9.1.P.409.]

Alisher Navoi took a scientific approach to flying in the sky. He realizes that he needs a special winged device to fly into the sky. He believes that only an engineer - a technical engineer - can make this device. He knows that only a wing

made by an engineer can take the poet to the sky and enable him to achieve his dream of flying among the birds and mingling with them.

It turns out that the collection of ideas that came to life in the mind of the great poet was so extensive that the limit of lyrical works to apply them to creativity was undoubtedly narrow. Let's get acquainted with the tools of artificial intelligence that appeared in the imagination of Alisher Navoi in the epic "Farhad and Shirin" with a specific plot system in "Khamsa".

In the epic, the poet gives free rein to his imagination. If we consider an astrolabe as an instrument used to observe celestial bodies, we can think of what an observation instrument in the form of a celestial spider can be called. One wonders if we are not talking about an unknown flying object, which is the most relevant information in the field of science in the 21st century. While reading the epic "Farhad and Shirin", we will clearly get acquainted with the discoveries of modern medicine, astronomy, physics, and chemistry, and as a result, we will not be able to deny this idea. Even Suhayla's Samandar oil that keeps fire away from Ahriman, which spits fire from his mouth at Farhad, isn't it a special liquid used by stuntmen in many films these days:

Dedi: "bu zarfkim mar'i bo'lodur,
Samandar yog'idin bilkim to'lodur.
Ki ajdar birla razm etkan zamonda,
Bu yog' o'tdin seni tutqay amonda" [10.1. P.140-141.]

In the epic "Farhad and Shirin", Alisher Navoi put his hero through unseen and unheard tests. At this point, it is worth recalling the scene of meeting the iron men. During his journey, Farhad survives the lion and comes across an iron statue inside the gate. On his chest hung a mirror from the mirror of the sun. If the traveler correctly aims at that window with an arrow, the iron man and a hundred similar statues around him will fall at once, and one of the obstacles to unlocking the spell will be removed.

Note that breaking the glass in Iron Man's chest causes a hundred people around to fall. Doesn't this situation remind us of a device acting on a special command - robots?!

One of the aspects of Alisher Navoi's talent is his desire to convince his reader of the events described and described by the poet. Strange images in "Farhad and Shirin", escalators in "Sabai Sayyor", self-moving thrones are presented to the reader as reality according to the poet's expression.

Results

Artificial intelligence has been defined by John McCarthy himself. He defined artificial intelligence as "the science and engineering of creating intelligent

human-like machines, especially intelligent computer programs." Accordingly, if a computer exhibits human-like behaviors such as reasoning, problem-solving, meaning-making, and generalization, that is, it can use higher-level cognitive abilities, a computer can be described as artificial intelligence [11.1. P.336-368.]. According to another great scientist, Nils Nilsson, who has researched artificial intelligence and is the author of many scientific publications in this field, "artificial intelligence is a theory aimed at creating an imitation of natural intelligence." [12.1. P. 192-237.] It can also be described as artificial intelligence - a sequence of algorithms that imitate the human mind. From the above, we can understand that everything in the world works within a certain algorithm, according to researches on artificial intelligence. Accordingly, consciousness is the result of a mathematically complex algorithm. The technical innovations described by Alisher Navoi in his works are used in real life in the 21st century.

One of the examples of artificial intelligence discovered in the works of Alisher Navoi is the mirror of the world - television. The poet calls this instrument "Jamshidi Jam". It was possible to see what was happening in the world with its help. In the 21st century, AI technologies have the potential to transform any industry, but the possibilities are not limitless.

As Alisher Navoi noticed it, everything could be seen from the television he described in his work, but he set a limit to the main character's ability to see his lover. Even in today's artificial intelligence, an AI system created for a particular field will not work for another field.

This means that a system designed for agriculture cannot be used in the medical field. Or the system designed to detect fraud cannot control the car or provide legal assistance. In other words, these systems are characterized by very narrow specialization. Systems are designed to perform one specific task and are far from multitasking like humans. A comparative analysis of the examples of imaginative intelligence described in Navoi's works confirms once again that the poet has a high perception.

Discussion

As we walk through the imagination of the great writer's creative heritage, we are amazed by the extraordinary discoveries of ideas. The charm of the system of countless found images does not give the reader peace. Do you even think that Alisher Navoi lived in the 15th century and felt the discoveries of the 21st century? Or did he himself become a contemporary of the people of the 21st century and fell into the living conditions of the 15th century? Let's turn to a ghazal from the book "Favoyid ul-kibar":

Xil'atni to aylamish jonon qizil, sorig', yashil,

Shulai ohim chiqar har yon qizil, sorig‘, yashil

True, we do not deny that the attention given to red, yellow, green colors in this place is a coincidence. However, it cannot be denied that the colors that catch the eyes of our contemporaries are, in a certain order, traffic lights. It can be proudly noted that the color of the traffic lights that control traffic in the cities of the world seems to reflect the passion of our great poet.

Conclusion

In conclusion, it can be said that Alisher Navoi, as a great Uzbek writer who lived in the 15th century, created and managed to show that he had a certain idea about the discoveries that determined the development of life in the future. In his time, Navoi's contemporaries regarded his imaginative intellect as something magical. In the 21st century, people look at inventions such as the escalator, television, and traffic lights discovered by Navoi as simple mechanisms or techniques. When comparing the past and today, it can be concluded that Alisher Navoi's intellectual knowledge was great. Today, for most authors of artificial intelligence, the brain is a structure that performs its functions based on the laws of the external world. This state means that artificial intelligence has a rational nature.

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ON THE METHODS OF FORMATION OF MODERN TECHNOLOGICAL TERMS

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Annotatio: *The paper examines the system of education of terms using special methods and technologies. The classification of techniques used in the creation of terms to describe certain phenomena and processes of a technological and research nature is carried out. Detailed examples are given, each method and technology for the formation of terms is analyzed. In conclusion, the general conclusions based on the results of the study are presented.*

Keywords: *terminology, linguistics, fine string oscillation equation, Ohm's law, Poisson's equation.*

Introduction

The increase in the scale of modern science and technology makes it possible to describe and define phenomena of various nature, character, taking into account a diverse degree of accuracy. At the same time, in most studies, it is repeatedly possible to observe the definition of various new objects, devices and structures [1]. An example of such cases can be created new mechanical structures, where the designation of each of its details is important; in architectural models,

the designation of new forms of parts of a building of non-standard shapes; In scientific research, it is the designation of various aspects of the phenomenon, parameters, variables involved in the description of the phenomenon under study, etc. [2; 4]

It is also important to determine the need for the formation of more adapted forms of designation for certain structures that were previously displayed differently [3-5; 8]. An example of such a transformation in technological and research activities can be the new designations of Leyden cans in the form of capacitors, the naming of equations of the second degree square and equations of the third degree cubic, according to analogy with the geometric method of solving such equations. Thus, it is possible to visually trace the ways of forming a variety of terms, each of which seems chaotic.

Work was carried out [6-9; 12-15] to study the formation of various names and designations in narrowly defined specified areas without systematization of methods and technologies of their formation [10-11; 15]. It can be seen from the above that conducting research in this area and systematizing the methodology of forming the term in a technological, scientific and research way is relevant.

Materials and methods

In the course of the study, methods of analysis, research, and classification of the results obtained during the analysis were used. The materials of the work were realized and realized works of a literary, scientific and research nature.

Research

Various studies covering various scientific fields lead to the need for the formation of new works and phenomena. Here is a good example for a technological process involving electromagnetic oscillations. From the experimental results, the concepts of current strength and voltage were defined, where the current strength is defined as the amount of charge that has passed through a conductor per unit of time (1) and voltage as the amount of work performed by this charge when passing through a conductor (2).

$$I = \frac{dq}{dt} \#(1)$$

$$U = \frac{dA}{dq} \#(2)$$

It is also known that the resistance indicator, determined empirically and equal to the product of the resistivity of the material by the ratio of the length of the conductor to its cross section, has been chosen as the parameter characterizing a real conductor (3).

$$R = \rho \frac{l}{S} \#(3)$$

The dependence between (1-3) is also determined according to the empirical law discovered by Georg Ohm and named after him (4).

$$U = \frac{I}{R} \Rightarrow IR = \varphi_1 - \varphi_2 + \xi \#(4)$$

From this definition, it is easy to obtain the transformation (5) and putting zero resistance for the case where an electromagnetic oscillation with an ideal oscillatory circuit is studied, deducing a simple second-order differential equation (6) and obtaining its solution in the form (7), which is transformed for geometric representation, into the formulation (8).

$$U = \frac{q}{C}, \xi = -L \left(\frac{dI}{dt} \right) \Rightarrow \frac{q}{C} + Lq'' = 0 \#(5)$$

$$\omega_0 = \frac{1}{LC} \Rightarrow q'' + \frac{1}{LC} q = 0 \#(6)$$

$$q = q_A \cos(\omega_0 t + \alpha) \#(7)$$

$$u(\vec{r}, t) = A_0 \cos(\omega t - (\vec{k}, \vec{r}) + \varphi_0) \#(8)$$

The result obtained is in itself an expression that describes a certain phenomenon – electromagnetic oscillations, due to which, according to the meaning, it can be called the "equation of electromagnetic oscillations". But since the ideal case is being considered, the name is supplemented and it is indicated that (8) is the "equation of ideal undamped electromagnetic oscillations" or "equation of electromagnetic oscillations in an ideal medium".

However, this equation depends on time, and also for a more real technological case it depends on three variables from which the magnitude of the amplitude is determined, so that the equation can be differentiated twice by 3 variables and time (9-12).

$$\frac{\partial^2 u(\vec{r}, t)}{\partial t^2} = -\omega^2 u_0 \cos(\omega t - (\vec{k}, \vec{r}) + \varphi_0) = -\omega^2 u(\vec{r}, t) \#(9)$$

$$\frac{\partial^2 u(\vec{r}, t)}{\partial x^2} = -k_x^2 B_0 \cos(\omega t - (\vec{k}, \vec{r}) + \varphi_0) = -k_x^2 u(\vec{r}, t) \#(10)$$

$$\frac{\partial^2 u(\vec{r}, t)}{\partial y^2} = -k_y^2 B_0 \cos(\omega t - (\vec{k}, \vec{r}) + \varphi_0) = -k_y^2 u(\vec{r}, t) \#(11)$$

$$\frac{\partial^2 u(\vec{r}, t)}{\partial z^2} = -k_z^2 B_0 \cos(\omega t - (\vec{k}, \vec{r}) + \varphi_0) = -k_z^2 u(\vec{r}, t) \#(12)$$

Thus, noting that the sum of the twice differentiated expressions in coordinates is equal to the twice differentiated form in time, forming equality (13).

$$\begin{aligned} \frac{\partial^2 u(\vec{r}, t)}{\partial x^2} + \frac{\partial^2 u(\vec{r}, t)}{\partial y^2} + \frac{\partial^2 u(\vec{r}, t)}{\partial z^2} &= -u(\vec{r}, t)(k_x^2 + k_y^2 + k_z^2) = \\ &= -(\vec{k})^2 \cdot u(\vec{r}, t) \Rightarrow -(\vec{k})^2 \cdot u(\vec{r}, t) = \frac{k^2}{\omega^2} (-\omega^2 u(\vec{r}, t)), \left(\frac{k^2}{\omega^2} = \frac{1}{v^2} \right) \Rightarrow \end{aligned}$$

$$\begin{aligned} \Rightarrow \frac{\partial^2 u(\vec{r}, t)}{\partial x^2} + \frac{\partial^2 u(\vec{r}, t)}{\partial y^2} + \frac{\partial^2 u(\vec{r}, t)}{\partial z^2} &= \frac{1}{v^2} \frac{\partial^2 u(\vec{r}, t)}{\partial t^2} \Rightarrow \\ \Rightarrow \Delta u(\vec{r}, t) &= \frac{1}{v^2} \frac{\partial^2 u(\vec{r}, t)}{\partial t^2} \#(13) \end{aligned}$$

The resulting expression fully describes the real phenomena for the transmission of electromagnetic vibrations in a vacuum, called the "equation of vibrations of a thin string". This name was formed due to the possibility of describing the simplest case in the form of a thin string oscillation from classical physics.

Discussion

Thus, using the example of the conducted research, it was clearly possible to see the various stages of the formation of a certain terminology for the phenomenon under study. According to the methods used to form the terminology system, the following were used:

1. Semantic method;
2. The approximate method.

At the same time, the first method is based on the formation of a name in the form of a certain meaning, for example, when naming the "fine string oscillation equation", forming a multi-syllabic term, where each word performs a strictly defined descriptive function peculiar to scientific research. The same algorithm was used for "current strength", "voltage", "charge", etc.

The second method is based on the formation of a term on behalf of the author, phenomenon, dedication and other things. Among the examples used, one can imagine Ohm's law, named after the discoverer. Or, in the same way, the terms of units of measurement for the current used are Amperes, in part of the scientist Marie Ampere; voltage is Volta, in honor of Alessandro Volta; resistance is Ohm. Alternatively, an indicator or an invention may be named after a case, a city, or a place of discovery. The above-mentioned Leiden jars, invented by the Dutch scientist Peter van Muschenbroek and his student Kueneus in Leiden, were named after the University of Leiden.

Given the technology of the organization created using the listed terms, you can specify the following methods:

- Borrowing;
- Translation;
- Neoplasm;
- Abbreviation;
- Name.

The first point refers to the technology of using a scientific term that is already available in a certain culture entirely, that is, becoming generally accepted. An example of such cases can be the formation of natural sciences named by Greek scientists – Physics (other Greek φυσική – "natural"), Philosophy (other Greek φιλοσοφία – "love of wisdom; love of wisdom") and others. But such borrowings can come not only from ancient Greek or European culture, but from any culture. For example, "algebra" comes from the Arabic "al-jabr" - "restoration of parts; equation; completion", which begins the work of Al-Khorezmi "A short book on the calculus of al-Jabr and al-Mukabala" in 825.

But at the same time, borrowing can also be combined with the second translation technology. An example of such a case is the term "algorithm", which comes from the Latin translation of the name Al-Khorezmi. Also, when forming the term "Algebra", the method of translation into Latin with additional transformations was also partially used.

The third technology is based on the methods of adding multiple available terms with or without the possibility of translation into other languages. For example, one of the directions of nuclear physics, "thermonuclear physics", is one of the unique representatives when 2 forms of mixing of this technology are used – vocabulary formation from "thermonuclear", which is a combination of the terms "temperature" and "core", as well as further formation of the form from the words "thermonuclear physics", which It is also a term. The dictionary method of neoplasm technology is used among modern terms in the creation of a new direction in nuclear physics "Physics of resonant nuclear reactions", which already consists of 4 terms.

In addition, a neoplasm in a word can be formed without the possibility of translation. An example of such a case can be "biology" - the name of science the term consists of Greek. βιολογία; from ancient Greek. βίος "life" and λόγος "teaching science", or in the example of "geometry" - from ancient Greek. γεωμετρία "earth" and μετρέω "to measure; evaluate".

Often, a neoplasm with multiple terms can be transformed into the form of an abbreviation, which is also a term and for the example of "Physics of resonant nuclear reactions", the corresponding new term is PRNR. The same algorithm works for the General Theory of Relativity – GRT, Special Theory of Relativity – SRT, Research Institute - Research Institute, Research Laboratory – NIL and others.

The next technology is the naming method, where a term, an object is named after someone or something. It is also worth considering here that this technology is divided into the technology of the transformed name or the non-transformed

name. The technology of non-transformed naming was shown by the example of "Ohm's law", or the names of units of measurement, as well as in the form of "Laplace equation", "Poisson equation", "Dirac equation", "Cauchy problem" and others. An example of a transformed name includes the name of elementary particles or chemical elements most often – Einsteinium (chemical element), Laurencium (chemical element), Rutherfordium (chemical element), Mendeleevium (chemical element), Umidon (elementary particle), Ra'non (composite particle).

CONCLUSION

Thus, special methods and technologies for the formation of terms and terminology systems were considered with their detailed analysis, examples and systematization.

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BUYUMLAR INTERNETI TEXNOLOGIYALARINING AQLLI SHAHAR INFRATUZILMASINI YARATISHDAGI ROLI

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Annotatsiya: Buyumlar interneti (IoT) texnologiyalari aqlli shahar infratuzilmasini yaratishda muhim rol o‘ynaydi. Ushbu texnologiyalar shahar boshqaruvini optimallashtirish, resurslarni samarali taqsimlash va fuqarolar uchun qulayliklarni oshirish imkonini beradi. IoT qurilmalari orqali shahar infratuzilmasi real vaqt rejimida kuzatilishi va boshqarilishi mumkin, bu esa transport tizimlari, energiya ta‘minoti, xavfsizlik va boshqa sohalarda samaradorlikni oshiradi. Aqlli shaharlar konsepsiyasi zamonaviy axborot-kommunikatsiya texnologiyalari va internet texnologiyalarining integratsiyasiga asoslanadi, bu esa shaharni bir butun holatda boshqarishga imkoniyat yaratadi.

Kalit so‘zlar: Buyumlar interneti (IoT), Aqlli shahar, Infratuzilma, Shahar boshqaruvi, Resurslarni taqsimlash, Real vaqt kuzatuv, Transport tizimlari, Energiya ta‘minot, Xavfsizlik.

Buyumlar interneti — urbanizatsiyalangan hududlarni rivojlantirishda yangi sahifa ochadi, bu yerda zamonaviy texnologiyalar va innovatsiyalar jamiyatning barqaror rivojlanishining asosiy elementlariga aylanadi. Global ekologik muammolar va butun dunyo bo‘ylab shahar aholisi tez o‘sib borayotgan davrda samarali va xavfsiz shahar muhitini yaratish vazifasi juda muhim bo‘lib qolmoqda. Buyumlar interneti (IoT), bu o‘zaro aloqa va ma‘lumot almashish uchun o‘rnatilgan texnologiyalarga ega bo‘lgan fizik ob‘ektlar tarmog‘i bo‘lib, bu muammolarni hal qilish uchun misli ko‘rilmagan imkoniyatlarni taklif etadi.

Aqlli shahar — bu fuqarolarning hayot sifatini yaxshilash, shahar xizmatlari va operatsiyalarining samaradorligini oshirish, shuningdek, atrof-muhitga salbiy ta‘sirni kamaytirish uchun raqamli texnologiyalar va IoTdan foydalanishni o‘z ichiga olgan konsepsiyadir. Bu konsepsiyaning asosiy maqsadi aholi ehtiyojlarining o‘zgarishiga moslashish va tabiatga hamda kelajak avlodlarga zarar yetkazmasdan uzoq muddatli rivojlanishni ta‘minlay oladigan barqaror infratuzilmani yaratishdan iborat.

Shaharda bo‘layotgan jarayonlarini samarali va shaffof boshqarishda real vaqtda ma‘lumotlarni yig‘ish va tahlil qilish uchun buyumlar interneti muhim rol

o‘ynaydi. Energiya iste‘molini intellektual boshqarishdan tortib, jamoat transporti avtomatlashtirilgan tizimlari va atrof-muhitni aqlli monitoring qilishgacha — IoT integratsiyalashgan va o‘zaro bog‘langan shahar ekotizimlarini yaratish uchun yangi ufqlarni ochmoqda.

Ushbu maqolada buyumlar interneti texnologiyalari aqlli shaharlarning barqaror infratuzilmasini shakllantirishga qanday hissa qo‘shayotgani tahlil qilinadi, shuningdek, ushbu jarayon bilan bog‘liq asosiy muammolar va istiqbollar ko‘rib chiqiladi. Tadqiqotning maqsadi — IoT texnologiyalarini shahar infratuzilmasiga integratsiyalash jamiyatning barqaror innovatsion rivojlanishining kuchli harakatlantiruvchi kuchiga aylanishi mumkinligini ko‘rsatish, shuningdek, bu jarayon shahar aholisi va atrof-muhitga qanday foyda keltirishi mumkinligini tahlil qilish.

Aqlli shaharda Buyumlar interneti (IoT) texnologiyalari — bu ma‘lumot almashish va tahlil qilish uchun datchiklar, dasturiy ta‘minot va boshqa texnologiyalar bilan jihozlangan o‘zaro bog‘langan qurilmalar tarmog‘i kontseptsiyasidir. IoT ning asosiy vazifasi — axborotni to‘plash, uzatish va qayta ishlash jarayonlarini avtomatlashtirish va soddalashtirishdir. Aqlli shahar ekotizimida IoT shahar xizmatlari va infratuzilma o‘rtasidagi aloqa kanali bo‘lib xizmat qiladi, bu esa ularning samaradorligini va shahar aholisi ehtiyojlari va sharoitlariga moslashuvchanligini sezilarli darajada oshiradi. IoT texnologiyalaridan foydalanadigan aqlli yoritish tizimlari kunning vaqti va ob-havo sharoitlariga qarab avtomatik ravishda yorug‘lik darajasini sozlashi, shuningdek, nosozliklarni aniqlashi va xabar berishi mumkin. Bu nafaqat energiya iste‘molini kamaytiradi, balki shahar ko‘chalarida xavfsizlikni oshiradi. Havo sifati datchiklari bilan jihozlangan IoT qurilmalari shaharning turli hududlarida ifloslantiruvchi moddalar konsentratsiyasi haqida real vaqt rejimida ma‘lumot to‘plashi mumkin. Ushbu ma‘lumotlar fuqarolarni xabardor qilish va sanoat korxonalari va transport ishini optimallashtirish orqali ifloslanish darajasini kamaytirish uchun ishlatiladi. IoT texnologiyalari asosidagi tizimlar real vaqt rejimida tirbandlikni tahlil qilishi va svetoforlar hamda jamoat transporti yo‘nalishlarini optimallashtirishi mumkin. Bu tirbandlikni kamaytiradi va fuqarolar uchun yo‘l vaqtini qisqartiradi, shuningdek, avtomobillardan zararli moddalar chiqindilarini kamaytiradi.

Buyumlar interneti (IoT) texnologiyalari shahar infratuzilmasi energiya samaradorligini oshirishda muhim rol o‘ynaydi. IoT-texnologiyalaridan foydalangan holda aqlli yoritish va binolar energiyasini boshqarish tizimlari joriy sharoit va ehtiyojlarga avtomatik ravishda moslashadi va keraksiz energiya sarfini sezilarli darajada kamaytiradi. Misol uchun, ko‘cha chiroqlari yorug‘ligini kunning

vaqtiga yoki odamlarning mavjudligiga qarab sozlashi mumkin va binolardagi tizimlar isitish, shamollatish va konditsionerlikni optimallashtirishi mumkin.

IoT texnologiyalari suv va chiqindilar kabi tabiiy resurslarni boshqarish uchun samarali yechimlarni taqdim etadi. Aqlli suv tizimlari yo'qotishlarni aniqlashi va suv taqsimotini avtomatik ravishda sozlashi mumkin, shu bilan isrofchilikni kamaytiradi va barqaror iste'molni ta'minlaydi. Chiqindilarni boshqarishda IoT chiqindilarni yig'ish yo'llarini optimallashtirishga va konteynerlarning to'liqligini kuzatishga yordam beradi, bu esa o'z navbatida qayta ishlash samaradorligini oshiradi va ifloslanishni kamaytiradi.

Buyumlar interneti shahar transport tizimlarining uglerod gazini kamaytirishga sezilarli ta'sir ko'rsatadi. Yo'l harakatining intellektual boshqaruvi, jamoat transporti yo'nalishlarini optimallashtirish va aqlli zaryad stansiyalari orqali elektrlashtirishni rivojlantirish atmosferaga zararli moddalar chiqarilishini kamaytirishga yordam beradi. Ushbu chora-tadbirlar nafaqat havo sifatini yaxshilash, balki shaharni rivojlantirishning kam uglerodli va ekologik barqaror modeliga o'tishga yordam beradi.

Muammolar va murakkabliklar. Aqlli shaharlar ekotizimida buyumlar interneti (IoT) texnologiyalari oldida turgan asosiy muammolardan biri kiberxavfsizlik va ma'lumotlarni himoya qilishdir. Ulangan qurilmalar soni ortishi bilan infratuzilmaning kiberhujumlarga nisbatan zaifligi ham oshib boradi. Bu esa shaxsiy ma'lumotlarga ruxsatsiz kirishga, fuqarolar haqida ma'lumot olishga yoki hatto muhim shahar xizmatlarini buzishga olib kelishi mumkin. Muammo bir nechta va ko'pincha turli xil IoT qurilmalarini himoya qilishning murakkabligi bilan yanada murakkablashadi. Ushbu muammolarni samarali hal qilish uchun keng qamrovli kiberxavfsizlik strategiyalarini ishlab chiqish talab etiladi. Bunga qurilma xavfsizligini standartlashtirish, ilg'or shifrlash usullaridan foydalanish va moslashuvchan boshqaruv tizimlarini yaratish kiradi.

IoT texnologiyasini shahar darajasida joriy etish bir qator texnik va moliyaviy to'siqlar bilan bog'liq. Texnik to'siqlar mavjud infratuzilmani yangilash, turli tizimlar va jihozlarni integratsiyalashni o'z ichiga oladi. Moliyaviy to'siqlar esa IoT texnologiyalari va infratuzilmasiga yuqori darajada sarmoya kiritish, uzoq muddatli texnik xizmat ko'rsatish va yangilashni ta'minlash zarurati bilan bog'liq. Ushbu to'siqlarni yengish uchun xususiy sanoat bilan davlat hamkorligi, innovatsiyalar uchun grant dasturlari, texnologik yechimlarni integratsiyalashni kengaytirishga yordam beruvchi standartlar ishlab chiqish zarur.

Shunday qilib, aqlli shaharlar uchun barqaror infratuzilmani yaratishda IoT texnologiyalarining salmoqli salohiyatiga qaramasdan, ularni hal qilishda davlat

organlari, xususi sektor va ilmiy hamjamiyat o'rtasida kompleks yondashuv va hamkorlik talab qilinadi.

Xulosa qilib aytganda, IoT-ga asoslangan aqlli shaharlarni rivojlantirish istiqbollari cheksiz ko'rinadi, bu erda barqarorlik va innovatsiyalar rivojlanishning asosiy yo'nalishlari bo'ladi. Kelajakda biz texnologiyaning yanada yaxshilanishini kutishimiz mumkin, bu esa shahar aholisi uchun yanada integratsiyalashgan, xavfsiz va qulay tizimlarni yaratadi. Davlat va xususi sarmoyalarni faol jalb qilish, standartlar va protokollarni ishlab chiqish, shuningdek, kiberxavfsizlik va ma'lumotlarni himoya qilishga e'tibor qaratish "aqlli shaharlar" konsepsiyasini muvaffaqiyatli amalga oshirishning asosiy omillari bo'ladi.

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TIVE EDUCATIONAL TECHNOLOGIES OF THE PROFESSIONAL EDUCATION SYSTEM

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Abstract. *In this article, the authors consider innovative educational technologies of the professional education system, analyze aspects of their implementation in practical activities, correlate their content and description with the requirements for the content. Innovative technologies are actively used in the process of forming professional competencies of students. At the same time, the authors emphasize the particular relevance of using flipped learning technology, VR training using simulations and distance education.*

Key words: *professional education, learning technologies, formation of competencies, learner activity, innovations in education.*

Introduction. Professional education is a complex multifunctional system aimed at comprehensive training of students. In the course of educational activities, the teacher uses various methods and means of teaching, which allow achieving the highest results and efficiency in the shortest possible time. Thus, the educational system of the Russian Federation is aimed at the use of innovative technologies in education, which, with proper construction and clear organization of the educational process, can significantly improve the effectiveness and quality of training. In addition, the process of implementation and practical application of innovative technologies is becoming a key problem for teachers of vocational training, since it is important not only to competently integrate these technologies into the process of the lesson, but also to make some adjustments to their own approach to organizing the activities of students, shifting the vector from the traditional to the innovative.

The purpose of the article is to consider the main innovative technologies of professional education, as well as to identify their characteristic features and methods of practical application.

Presentation of the main material of the article. The dynamism of the modern world becomes the key to the increased need not only for high-quality, but also relevant education. It is worth noting that the highest efficiency of education is

reflected in its ability to adapt to the current economic and social situation and other external conditions. The use of innovative technologies by teachers in the educational process is aimed at involving students in the educational process from an active learning position. Thus, the introduction and competent use of innovative technologies increases the efficiency and quality of education. Many researchers have proven the fact that the introduction of innovative technologies contributes to increased efficiency in achieving educational goals and objectives, increased learning outcomes, increased student motivation, and the involvement of students in active activities both within the educational process and beyond [1]. Thus, innovative technologies are understood as special forms and methods combined with the methods and skills of a teacher in organizing the educational process, aimed at organizing active learning from the position of realizing the potential of a student. It is worth noting that innovative educational technologies are built on the principle of the

- interrelation of three main (system-forming) components - the use of modern content, teaching methods, as well as the formation of a modern educational infrastructure:

- the use of modern content involves a clear structuring of the content of the academic discipline with the formation of accompanying educational materials (in the form of multimedia presentations, videos, audio files, etc.), the use of which involves the availability of modern information and communication technologies. It is also worth considering that the content of training in a professional educational organization includes the formation of not only knowledge, skills and abilities, but also relevant competencies that correspond to the modern economic and social situation;

- modern teaching methods are understood primarily as methods aimed at activating and involving students in the educational process (taking into account the specifics of teaching and the formation of relevant knowledge, skills and abilities), the inclusion of active group creative activities, collective interaction (as opposed to the traditional “passive” perception of information);

- the modern educational infrastructure is a system built from key components of the educational process – information, organizational (managerial), technological, communication and technical components, each of which allows us to draw the necessary advantages and introduce them into the educational process (for example, to introduce the active use of gadgets in educational process, etc.) [5].

At the same time, the use of innovative technologies in vocational education involves the implementation of many principles of training: continuity, application

of a competency-based approach to training, multi-level educational and upbringing activities, introduction of modern IT technologies in training (creation of relevant methodological materials by a teacher, use of electronic educational resources and platforms, conducting classes in special classrooms with Internet access and multimedia tools) and others. It is worth noting that at this stage, innovative technologies occupy a special place in the education of the Russian Federation - they are actively introduced by teachers into the educational process, refined and combined with traditional methods, which allows to increase the efficiency of their practical application. There are many innovative teaching technologies, some of which include: - brainstorming; - problem-based learning; - tutor support; - flipped learning; - debates; - VR technologies; - distance learning.

Thus, it is worthwhile to analyze in detail the innovative technologies used by teachers of vocational training:

1. **Brainstorming.** This teaching technology is one of the methods of stimulating the collective principles of a group of students with their subsequent activation during the educational process; its application involves posing a problem that requires an immediate solution, which simply creates limited conditions (time frames), within which students form solutions, offering all sorts of options. At the end of the time given to solve the problem, the teacher organizes a discussion and a joint choice of the best proposal by students - this approach allows each student to take part in the activities of the team; the most effective application of this method is in combination with group interaction, when the teacher forms small groups of students of 3-4 people, each of whom offers a single solution to the problem [8].

Of course, it is worth considering that the use of the “brainstorming” method cannot take place throughout the entire lesson, however, its use, for example, for the purpose of activating brain activity students is a promising area of activity for teachers.

2. **Problem-based learning.** This innovative technology is somewhat similar to “brainstorming”, but only in general terms. If brainstorming involves a quick solution to a problem, then problem-based learning is built on a different technology. Thus, the teacher uses problematic questions, which are often contradictory and do not have an unambiguous “correct” answer - against the background of

whereby students gradually, step by step, move towards a solution to a problem, which is often only one of many available variations. When using this technology, a special place is also occupied by the active position of the student and the formation of collective points of view - some students come to one conclusion during the discussion, others - to another, which creates a field for

discussion. At the same time, problem-based learning can be used by a teacher for a longer period of time than brainstorming, since if the essence of brainstorming is to quickly form a non-standard solution to a problem, then problem-based learning aims to form the most complete (accurate and planned) comprehensive solution to the problem [2].

3. Tutor support. This type of innovative educational technologies is a way of organizing independent activities of students, the results and products of which are then discussed with the teacher. The role of the teacher in organizing tutor support is to create a situation and general conditions based on the student's cognitive interest with the organization of assistance, gradual movement towards the result, as well as increasing the student's motivation by introducing complete independence [4].

Thus, the above-mentioned innovative teaching technologies are an integral part of building a comprehensive system of both personal and professional training of specialists, based on compliance with the general principles of professional training. Thus, the most relevant and promising teaching technologies for development are: flipped learning, VR learning, distance learning, each of which, with proper organization of the educational process, contributes not only to the high-quality implementation of innovations in education, expressed in increased efficiency, but also to the formation of a general system for training competent, flexible and mobile specialists [6].

Conclusions. Thus, the introduction of innovative educational technologies into the educational process requires the teacher to have special prognostic, organizational, creative and other abilities, combined with high motivation to include students in active educational and cognitive activities, within the framework of which knowledge, skills, abilities and competencies are formed. At the same time, the teacher must clearly plan the learning process

- some of the above technologies have a short-term perspective of use (for example, brainstorming) and cannot be used by the teacher constantly, because this will reduce their overall effectiveness. That is why the teacher must be able to find a balance between modern- innovative and traditional learning technologies, build the educational process smoothly, and at the same time, be ready for a possible change in the content of training in accordance with modern requirements imposed by both the state, the economy, and the public. Thus, the innovative educational technologies considered have their own specific application, and with proper organization of the educational process contribute to increasing the effectiveness of training. At the same time, some of the proposed technologies have their own characteristics, advantages and disadvantages that require special attention from

teachers. Thus, the teacher must clearly and promptly adapt to modern realities, while conducting active educational and upbringing activities.

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SQL TILINI O`QITISHDA PEDAGOGIK-INNOVATSION USULLAR.

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Anotatsiya: *Ushbu maqolada Sql tilini o`qitish metodikasi haqida batavsil ma'lumot berilgan. Shu bilan birgalikda Sql tilini o`qitishda pedagogik – innovatsion usullarni qo`llash metodlari ilmiy jihatdan tadqiq etilgan.*

Kalit so'zlar: *Sql, innovatsion, pedagogik, o`qitish, ta'lim-tarbiya .*

Hozirgi kunda inson faoliyatida ma'lumotlar bazasi (MB) kerakli axborotlarni to'plash, saqlash va qayta ishlashda muhim o`rin tutmoqda. Chunki jamiyat ishlab chiqarishining qaysi jabhasiga nazar solmaylik o`zimizga kerakli ma'lumotlarni olish uchun, albatta, MBga murojaat qilishga majbur bo'layapmiz. Shuning uchun ham MB bilan muloqot qilish axborot almashinuv texnologiyasining eng dolzarb muammolaridan biriga aylanib borishi hozirgi davr taqozasidir. Axborotli texnologiyalarning taraqqiyoti va axborot oqimlarining tobora ortib borishi insoniyatni ma'lumotlarni o`z vaqtida qayta ishlash choralarining yangi uslublarini qidirib topishga majbur qilmoqda. Ma'lumotlarni saqlash, uzatish va qayta ishlash uchun MBni yaratish, so`ngra undan oqil ona foydalanish bugungi kunning dolzarb masalalaridan biriga aylandi.

SQL (Structured Query Language, odatda "sikvel") deb o`qiladi va ma'nosi "Tarkiblangan so`rovlar tili". Bu til relyatsion ma'lumotlar bazalari bilan ishlashga imkon beradigan tildir. SQL tilining xususiyati shundan iboratki u ma'lumotlarni qayta ishlash protseduralariga emas natijalariga yo`naltirilgan tildir. SQL tilinig o`zi ma'lumotlar qayerda joylashgani, qanday indekslarni qo`llash kerakligini aniqlaydi, ya'ni bu komponentalarni ma'lumotlar bazasi so`rovlarida ko`rsatish shart emas.

SQL tilining o`zi dastlab IBM kompaniyasining DB2 MBBTni yaratish jarayonida ishlab chiqilgan va keng ko`lamda RISC protsessorli kompyuterlarda UNIX operatsion tizimi muhitida qo`llangan.

SQL tilini dasturlash uchun yaratilgan algoritmik til deb hisoblab bo`lmaydi. U eng avvalo, mantiqiy-axborotlar tilidir. Uning yordamida relyatsion MBda saqlanadigan ma'lumotlarni tavsiflash, izlash, o`zgartirish va olish mumkin.

SQL tilini o`qitishda pedagogik-innovatsion usullarni qo`llash ayni vazifani xal etishda olib borilayotgan ishlardan biri sanaladi. Quyida pedagogning fanni o`qitishda joriy etilishi kerak bo`lgan innovatsion usullarni taxlilini keltirib o`taman:

Fani o`qitishda mazmun-mohiyat eng muhim hisoblanib, u quyidagi mezonlar bilan bog`liqdir:

- o`quv materiallaridagi bayon qilinadigan ma'lumotlarni axborot ko`rinishiga keltirish va ularda uzviylik hamda izchillikni saqlab qolish;

- o`quv materiallarini o`zaro bog`liq bo`lgan modul bloklari shaklida ifodalashga erishish;

- o`quv materiallarini o`rganishga - Kompleks yondashuvlar nomli tadqiqot usulidan foydalanishga erishish va undan muammoli hamda dasturiy ta`lim metodlaridan foydalanish;

- ta`lim-tarbiya jarayonida axborot muhitini yaratish borasida o`rganilayotgan sohaning axborotli ta`minotini yaratishga yetishish;

- didaktik o`yin(shu jumladan kompyuterli o`yinlar va trenejlar) orqali turli voqea va hodisalardagi jarayonlar kechishini ifodalovchi masalalar (muammolar)ni yechish va shu kabilar.

Pedagogik innovatsiyaning muhim belgilari:

- ta`lim-tarbiya jarayonini oldindan mavjud manbalarini hisobga olgan holda va fan-texnikaning eng so`ngi mavzuga(fanga) mos yutuqlarini e`tiborga olib, ta`lim jarayonini loyihalashtirish va uning natijalarini prognoz(bashorat) qila olish;

- ta`lim-tarbiya jarayoniga – tizimiy yondashuvlar tadqiqot usulini qo`llashda, qaralayotgan tizimining elementlari va qism tizimlari orasidagi bog`lanishlarni e`tiborga olish va bular asosida talabalarning o`qish-bilish faoliyatini tasvirlaydigan ta`lim-tarbiya jarayoni rejasini tuzish;

- ta`lim-tarbiyada maqsad aniq bo`lishi, uning diagnostikasi(tashhisi) va pronozi(bashorati) hamda talabaning o`zlashtirishi sifatini xolis baholash mezonini bo`lishi kerak;

- ta`lim tizimi tuzilishi, tarkibi, mazmuni bir butun yaxlit bo`lib, ularning o`zaro bog`liqligi, bir-birini bosqichma-bosqich to`ldirilib borilishi ta`minlangan bo`lishi kerak;

- ta`lim va tarbiyada olib boriladigan faoliyatning optimal variantlarini ta`minlay olish lozim;

- ta`lim-tarbiya jarayonining texnik va informatsion ta`minoti yetarli bo`lishi lozim;

- yaratilgan pedagogik innovatsiya(PI)ni talabalarning ilmiy-uslubiy salohiyatini hisobga olgan holda o`qitish;

- ta'lim sifatiga e'tibor bergan holda shakllantiruvchi va yakuniy nazoratlar olish;

- rejalashtirilgan joriy, oraliq va yakuniy nazoratlarni o'tkazish va uning chuqur tahliliga erishish orqali talabalar o'zlashtirish monitoringi ko'rsatkichini doimo e'lon qilib borish;

- ta'lim-tarbiya samaradorligini aniqlash mezonini bo'yicha yakuniy nazorat va amaliyotga joriy etish bo'yicha uslubiy tavsiyalar berish.

Pedagogik innovatsiya imkoniyatlari:

- Fan – ta'lim - amaliyot uzviyligini ta'minlaydi;

- PI ning maqsadi, mazmun-mohiyati, muhim belgilari, ularning uslubiy va axborotli ta'minotlari hamda imkoniyatlari bo'yicha batafsil ma'lumot berishga asoslar yetarli bo'ladi;

- PI dan foydalanishda o'rganiladigan manba(mavzu, fan, tarbiya yo'nalishlari va hakoza)ga qarab uni takomillashtirish yoki keraksiz qismlarini e'tiborga olmaslik mumkin;

- PI dan foydalanishda ozgina o'zgartirishlar kiritish orqali o'xshash manbalarni o'rganish hamda foydalanish mumkin va shu kabilar.

Pedagogik innovatsiyaning vazifalari:

- talabani - Kadrlar tayyorlash Milliy Dasturi talablari asosidagi zamonaviy raqobatbardosh mutaxassis darajasiga yetkazishda zamonaviy ko'makchi bo'lish;

- o'qituvchi malakasini oshirish, talaba kasbiy fazilatlarini takomillashtirish yo'llarini ishlab chiqishdagi ijobiy ishlarini rivojlantirishga erishish;

- reyting, test usullaridan ta'lim-tarbiya jarayonida keng foydalanish;

- ilg'or pedagogik texnologiyalarni tahlil qilish, saralash va joriy etishga erishish hamda pedagogik samaralarini aniqlash;

- ta'lim dasturlarining invariantlarini, modifikatsiyalarini yaratish, ayniqsa elektron darsliklar hamda o'quv qo'llanmalari yaratishga erishish va ularni amaliyotga joriy etish;

- ta'lim-tarbiya jarayonining yangi axborotli va pedagogik texnologiyalarini qo'llash va unda sifat ko'rsatkichlari hamda samaradorlikni baholab borish;

- o'z mustaqil fikrini bayon qilishga sharoit yaratish va ularda tanqidiy fikrni bayon qilish imkoniyatlarini yaratish;

- Ustoz- shogirdlik tizimidagi erkinliklarni rivojlantirish va shu kabilar.

Pedagogik innovatsiyaning rivojlanish jarayoni bosqichlari:

- ta'lim-tarbiyani yanada rivojlantirish va takomillashtirishning zarurligini tushunishning paydo bo'lishi va o'zida paydo bo'lgan g'oyalar asosida ta'lim-tarbiyadagi muammo yechimini rivojlantirish va loyihalashtirish hamda tajribasiz ishlarini modellarini yaratishga kirishish;

- shakllana boshlagan g'oyalar va ular asosidagi loyihalash-rivojlantirish ishlarini qo'yilgan maqsadlar bo'yicha aniq modellashtirish, yangicha tafakkur va tajriba rejaları qabul qilinib, qo'llab-quvvatlanadi, natijada aniq yangi g'oya paydo bo'lib, uning rivojlanishi uchun muhit va sinov-tajriba maydonchalaridagi ishlar natijalari bo'yicha axborot muhiti yaratiladi va joriy etish ko'lami aniqlanadi;

- qo'llanishi kerak bo'lgan pedagogik innovatsiyaning me'yoriy hujjatlari tayyorlanadi va DTS talablariga tegishli tuzatishlar kiritiladi, keng joriy etishga tavsiyalar beriladi va shu kabilar.

6. Pedagogik innovatsiya quyidagi tamoyillarga asoslanadi:

- ta'lim – tarbiyaning yagona tizimdan iborat ekanligi, undagi uzluksiz ta'lim tizimi va tarkibining yaxlitligi, birligi hamda bir-biri bilan uzviy bog'langanligi;

- ta'lim-tarbiya jarayonini olib borishda optimal variantlarni topishga erishish;

- zamonaviylik, yani ta'lim-tarbiya uslubiyatini zamonaviy fan-texnika yutuqlari bilan boyitib borish;

- ilmiylik, yani ta'lim-tarbiya tizimini muntazam ravishda rivojlantirib borish maqsadida uzluksiz ilmiy izlanishlar va tadqiqotlar olib borish;

- moddiy-texnika bazani zamon talabi asosida yaratish, pedagogik jarayonda axborotlashtirish muhitiga e'tibor berish;

- axborot texnologiyalari va texnikalaridan foydalanish samaradorligini oshiruvchi elektron darslik va o'quv qo'llanmalarini ishlab chiqish, shuningdek masofaviy ta'lim va —Internetdan foydalanish imkoniyatlarini kengaytirish;

- talabalar bilimni baholashni avtomatlashtirish hamda bilim monitoringini muntazam ravishda nazorat qilib borish va shu kabilar

Hozirgi kunda SQL tilida ishlovchi turli ma'lumotlar bazasini boshqaruvchi tizimlar mavjud. Ularni o'rgatishda Microsoft Access MBBT ni o'rganishni qiyoslash orqali talabalarga o'rgatilsa juda yuqori samara beradi.

Misol tariqasida Microsoft Accessni ishga tushirsak yangi ma'lumot bazasini yaratib, nom berishni so'raydi. My Sqlda ham huddi shu tartibda bajariladi. Faqat My Sqlda operatorlar orqali bajariladi.

Ko'pchilik, terminlarni tushunish bo'yicha biroz qiynalishadi, lekin aynan terminlarni bilish, qo'yilgan vazifalarni yechishda yoki paydo bo'lgan xatoliklarni bartaraf etishda juda kerak bo'ladi. Misol uchun, biror muammo paydo bo'lsa, biz darhol Google'ni yordamga chaqiramiz, agar Google qidiruv tizimiga terminlar orqali so'rov bersangiz, muammo yechish qiyinchilik tug'dirmaydi, agar terminlarsiz oddiy so'zlar bilan qidirishni amalga oshirsangiz, muammoni yechishga ancha vaqt ketib qoladi.

Bu maqolada ma'lumotlar omboriga oid juda kerakli va ko'pchilik(!) adashtiradigan ikki termini tushuntirishga harakat qilaman: Ma'lumotlar bazasi va Ma'lumotlar bazasini boshqarish tizimi(MBBT).

Ma'lumotlar bazasi bu — tartiblangan ma'lumotlarni saqlovchi va qayta ishlovchi axborot modeli hisoblanadi. Sodaroq qilib aytganda, bir xil turdagi axborotlarni o'zida saqlovchi va berilgan so'rovlar orqali ularni taqdim etuvchi model. Misol uchun, kitoblar javoni, bu ma'lumotlar ombori hisoblanadi, ya'ni bir xil turdagi(kitoblarni) obektlarni o'zida saqlaydi, yoki bo'lmasa telefon raqamlar yozilgan kitobcha, bu yerda ism, telefon raqam kabi bir xil tipdagi ma'lumotlar saqlanadi, bu ham ma'lumotlar bazasi.

Ma'lumotlar bazasi MBBT'ning bir qismidir, demak bu dasturlarni ishlatganda «ma'lumotlar bazasi sifatida Oracle'ni tanladim» emas, balki «Ma'lumotlar bazasini boshqarish tizimi sifatida Oracle'ni tanladim» to'g'ri bo'ladi.

Xulosa qilib aytganimizda, innovatsion faoliyat – bu ilmiy izlanishlar, ishlanmalar yaratish, tajriba – sinov ishlari olib borish yoki boshqa fan-texnika yutuqlaridan foydalangan holda yangi texnologik jarayon yoki yangi takomillashtirilgan mahsulot yaratish bo'lib, uning progmatik xususiyati shundaki, u q'oyalar maydonida ham va alohida bir sub'yektning harakat maydonida ham amalga oshirilmaydi, balki bu faoliyatni amalga oshirish tajribasi kishilar hayotida hammabop bo'ladigan holdagina haqiqiy innovatsion hisoblanadi.

Innovatsion faoliyatning asl mazmuni amalda yangi texnologiyaning shakllanishi bo'lib, uning natijasi innovatsiya sifatida yuzaga kelgan ixtironi–loyihaga, loyihani – texnologiyaga aylantirishga yo'naltirilgan faoliyatdir. Innovatsion faoliyatda ilmiy tasavvurlar akademik ilm mantiqi bo'yicha tuq'ilmaydi, balki rivojlanish jarayonining modifikatsiyalari qo'llab-quvatlanishi natijasida rivojlanayotgan amaliyot mulohazasidan paydo bo'ladi.

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CHALLENGES IN DEVELOPING COURSE MATERIALS FOR TEACHING ENGLISH TO INFORMATION TECHNOLOGY STUDENTS

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Annotation. *This article explores the multifaceted challenges faced by educators in developing course materials for teaching English to Information Technology (IT) students. These challenges range from addressing the complexities of IT-specific terminology, finding a balance between language instruction and technical content, to bridging curriculum gaps. It also discusses practical solutions, such as collaboration between IT professionals and language educators, task-based learning, and leveraging technology. The article emphasizes the need for innovative approaches to ensure that English course materials are relevant and practical for IT students, preparing them for global communication in the tech industry.*

Keywords. *English for Specific Purposes (ESP), Information Technology, course material development, technical jargon, language instruction, task-based learning, interdisciplinary teaching.*

As Information Technology continues to dominate global markets, the ability to communicate proficiently in English has become critical for IT professionals. Research by Hutchinson and Waters (1987) introduced the concept of English for Specific Purposes (ESP), which aims to tailor language teaching to the needs of specific fields. This approach is particularly relevant for IT, where technical terminology and industry-specific contexts must be considered when designing course materials.

Studies have shown that developing ESP materials for technical fields like IT presents unique challenges. Dudley-Evans and St. John (1998) emphasized that the traditional "one-size-fits-all" language course is insufficient for IT students, whose needs differ significantly from those of general English learners. Additionally, Hyland (2006) pointed out that ESP courses must integrate not just technical vocabulary but also the critical thinking skills needed to navigate IT concepts.

While some successful models exist, such as the use of authentic materials and case studies (Basturkmen, 2010), these are not widespread enough to meet the growing global demand. Furthermore, Robinson (1991) observed that a lack of

interdisciplinary collaboration often limits the effectiveness of ESP courses for IT students, as language instructors may lack the technical expertise needed to design truly relevant materials. This highlights the need for a more integrated approach to course development.

The Information Technology sector has undergone a revolution over the past two decades, with English emerging as the global lingua franca in the tech world. IT professionals are not only required to be proficient in technical skills but also in English to collaborate with international teams, engage with documentation, and participate in global projects. However, teaching English to IT students requires a different approach than teaching it to students in other disciplines. Course materials must be carefully designed to address the specific linguistic and technical needs of IT learners.

Developing these course materials poses a series of challenges that are not often encountered in general English language courses. From the complexity of IT jargon to the challenge of creating engaging content that aligns with students' professional goals, educators are tasked with bridging a gap between language proficiency and technical knowledge.

Challenges:

Technical Jargon and Terminology. One of the primary challenges in teaching English to IT students is the sheer volume and complexity of technical jargon. Terms like "encryption," "data mining," "firewalls," and "cloud computing" are standard in the IT world but can be difficult for non-native English speakers to understand, particularly when these terms do not have direct equivalents in other languages.

The educator's role becomes more complex when they are not only teaching the meaning of these terms but also ensuring that students can use them correctly in a professional context. This can be overwhelming for students, especially those at lower levels of English proficiency. Furthermore, there is often an assumption in technical environments that students already have a baseline understanding of these concepts in their native language, which may not always be the case.

Balancing Language Skills with IT Content IT students need more than just general conversational English; they need to master the language at a level that enables them to understand and communicate complex technical information. This often requires striking a balance between traditional language learning—such as grammar, vocabulary, and syntax—and the more specialized technical content.

For example, while students need to understand how to form complex sentences, they also need to be able to read technical manuals, participate in team meetings, or write project reports. Educators must therefore develop materials that cater to both linguistic and technical aspects without overwhelming the students. Traditional language textbooks, even those designed for ESP, often fall short in

this area, forcing teachers to create their own materials or adapt existing ones heavily.

Curriculum Gaps and Lack of Specialized Resources Many of the challenges related to teaching English to IT students stem from a lack of specialized course materials. Most available ESP resources are too general and fail to address the highly specialized vocabulary and contexts that IT students encounter. This leaves educators with the difficult task of either adapting generic materials or creating new resources from scratch, both of which can be time-consuming and ineffective if not done properly.

This gap is further exacerbated by the rapid pace of change in the IT sector. New technologies and terms are constantly emerging, making it difficult for educational resources to keep up. For instance, the vocabulary associated with cloud computing has exploded over the past decade, but few language textbooks have incorporated this terminology into their content. This results in a disconnect between the materials being taught and the reality of the IT industry.

Practical Application and Real-World Relevance IT students often prioritize practical, real-world applications of their studies, which means that course materials need to be directly tied to the kinds of tasks they will encounter in their careers. However, integrating practical examples and tasks into language teaching presents a challenge, particularly when students have varying levels of both technical knowledge and language proficiency.

For instance, teaching students how to write clear technical documentation or present their findings at an IT conference requires a combination of technical understanding and strong communication skills. Educators must develop materials that enable students to practice these skills in a way that is both linguistically accessible and technically rigorous. Case studies, real-world projects, and collaborative tasks are effective methods but require careful planning and execution.

Possible Solutions

Collaboration Between IT Experts and Language Educators A potential solution to these challenges is closer collaboration between language educators and IT professionals. By working together, they can create materials that are not only linguistically appropriate but also relevant to the current needs of the IT industry. Such collaboration ensures that course materials are both comprehensive and practical, allowing students to apply what they learn in real-world settings.

Additionally, guest lectures, industry visits, and real-world project collaborations can provide students with the opportunity to engage with authentic materials and tasks. These experiences help bridge the gap between theory and practice, making language learning more relevant and engaging.

Task-Based Learning (TBL) in ESP Courses Task-based learning (TBL) has been widely recognized as an effective method for teaching language skills in context. For IT students, this could involve tasks such as preparing presentations on recent IT innovations, writing technical documentation, or collaborating on projects using English as the primary language of communication. Such tasks allow students to practice language skills while engaging with the kinds of challenges they will face in the workplace.

TBL can also be adapted to suit different levels of language proficiency, making it a flexible solution for diverse classrooms. By focusing on practical tasks, educators can motivate students and improve both their language and technical skills simultaneously.

Use of Technology in Course Development. The integration of technology into language teaching is another promising solution. For IT students, who are already familiar with various digital tools, using technology in the classroom can enhance engagement and make the learning process more relevant. Online platforms, simulations, and collaborative software provide opportunities for students to practice their English skills in a technical context.

For example, collaborative coding platforms that allow students to work together in English can help them develop both their technical and linguistic abilities. Additionally, online forums, blogs, and project management tools offer authentic contexts in which students can practice communicating in English about technical topics.

The development of effective English course materials for IT students requires addressing unique challenges, including the need for specialized vocabulary, balancing language learning with technical content, and providing practical, real-world applications. However, through interdisciplinary collaboration, the use of task-based learning, and the integration of technology, educators can create materials that are both engaging and relevant, preparing students for successful careers in the global IT industry.

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DIGITAL TRANSFORMATION AND MANAGEMENT IN THE MODERN DIGITAL ENVIRONMENT

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Abstract: *The article discusses the current requirements for modern management in the context of global digital transformation. The main focus is on the concept of digital management, its role and impact on management processes at all levels of the enterprise. Digitalization provides managers with new tools and technologies that significantly increase productivity, optimize resources and improve the quality of decisions made. Along with new opportunities, digitalization also faces a number of serious challenges: modern enterprises are experiencing an acute shortage of specialists with the necessary skills and knowledge in the field of digital technologies and management, the growth of cyber threats and the need to protect corporate data. A successful transition to a digital management model requires significant modernization of the existing infrastructure, including updating IT systems, introducing cloud technologies and integrating new solutions for data and process management.*

Keywords: *digital technologies, digital transformation, business processes, business adaptation, digital management, project management, data analytics*

Introduction. In the modern world, digital technologies penetrate into all areas of our lives, including management and organization. The transition to digitalization is becoming an integral part of modern management, helping organizations increase efficiency, improve quality and achieve better results. Digital transformation in management offers new opportunities and challenges, requiring leaders and organizations to adapt to new technologies and strategies [1]. In our era of active development of the global information society, a new digital economy is being formed. Digitalization processes penetrate every aspect of business activity, introducing new standards for effective management. Currently, it is necessary to rethink the methods of organizing the activities of enterprises, taking into account the transition to the principles of the digital economy and skillfully adapting to forecasts of the company's future activities.

One of the key factors in ensuring a competitive advantage for any enterprise is systems for effective management of business processes, resources, finances and personnel. These systems should be aimed at integrating innovative technologies, as well as providing a variety of tools and methods for optimizing

various business processes [4]. In modern conditions, such systems are becoming a key tool for increasing the efficiency of all processes occurring in an enterprise.

Methods

Informatization of an enterprise includes the introduction of various information technologies and systems in order to increase the efficiency of business processes, improve working conditions and improve the quality of products. However, there are a number of significant problems on the way to widespread dissemination of these processes. First of all, there is an inconsistency in the legal framework governing the emerging new economic order and technological changes. This creates difficulties in bringing legislation into line with dynamically developing information technologies.

An additional challenge is the significant increase in the amount of data that needs to be processed. Managing such volumes of data becomes a challenge, and companies are faced with the need to develop effective methods and tools for processing information.

The low level of qualified and competent personnel is another challenge. Specialists must have the skills to work with new technologies, which requires a systematic approach to training and retraining of personnel [2]. Increasing information flows are also a challenge, requiring the development of effective filtering and analysis methods to extract valuable information from large volumes of data.

The next problem is the risk associated with ensuring information security during the transfer, processing and storage of data. As the volume of information increases, so do the potential security threats. The emergence of new technologies requires significant modernization of enterprise infrastructure. This can cause difficulties in financing and implementing modern technological solutions [2].

Solving these problems requires an integrated approach and cooperation between business, government and educational institutions. Leading consulting agencies conducting various studies on digital transformation issues identify the following problems (Fig. 1):



Fig. 1. Challenges on the path to digital transformation

(data taken from the analytical report of the consulting agency McKinsey & Company)

The regulatory framework lags significantly behind the dynamic changes in the field of information and communication technologies. Many legal acts adopted before 2000 do not take into account modern trends and do not regulate new concepts such as blockchain. This creates serious problems for managing enterprises in the new digital economic order, which requires a quick response to external changes.

The need to ensure transparency and structure of business processes, take into account changes in the digitalization environment and effectively manage the knowledge and potential of personnel is becoming an important task for modern enterprise management [3]. However, existing legal norms are often inadequate to meet the new challenges presented by the digital economy.

The introduction of digital technologies in enterprise management brings significant benefits, such as increased production flexibility due to rapid data processing and the possibility of comprehensive analysis. Digitalization contributes to a more effective adaptation of business processes to innovation and modern requirements of the digital economy, which ultimately improves the quality of all aspects of the enterprise's business activities. However, for maximum effect, it is important to ensure not only technological, but also legislative readiness for such change [7].

Factors slowing down digital transformation are identified by experts as key obstacles to innovation. One of the main factors is the shortage of highly qualified personnel. A lack of people with the appropriate skills and experience can make it difficult to successfully implement digital projects [4].

Lack of connections between information technology and business processes is another obstacle. Lack of effective coordination between technical and business aspects can make it difficult to successfully implement digital change. Funding issues are one of the important factors influencing the success of digital transformation. Lack of funds can be a serious obstacle to the introduction of modern technologies and working methods.

The possibility of various types of risks also contributes to the slowdown in digital transformation. Data security, legal issues, and other risks may require careful attention and additional resources to manage. Addressing these pressures requires a comprehensive and balanced approach, including education, workforce development, technological infrastructure upgrades, and flexible management and financing strategies [6].

The introduction of new systems such as robotics, artificial intelligence, 3D printers, drones, the Internet of Things (IoT), blockchain, and augmented and virtual reality (AR) represents an important step in adapting to the digital world. However, it also comes with risks, as standard designs are often used that do not always fully match the unique characteristics of the enterprise. The digital structure of the economy involves the use of new technologies at all levels of enterprise management. Data collection may involve the use of IoT and drone technologies, data processing may involve the use of artificial intelligence and blockchain, and data output may involve robots, 3D printers, and augmented and virtual reality technologies. However, it is important to realize that the transition to a digital lifestyle requires not only the introduction of technology, but also changes in approaches to management, staff training and solving new challenges in the field of data security and confidentiality. Preparing for these changes and being flexible in responding to them are becoming key factors for success in digital transformation [5].

The transition to digital transformation of business is possible only through the introduction of modern technologies into existing business processes [8]. The introduction of IoT technologies promises to revolutionize an organization's business processes, bringing with it increased operational efficiency and a reduction in the time required for production preparation. This also helps reduce operating costs and improve energy efficiency.

The implementation of digital management in manufacturing enterprises entails the solution of several key tasks. The following tasks were identified:

The first task is to identify all the changes that will occur in the enterprise management system during the transition to the digital economy.

The second challenge is to identify the differences between digital and traditional management.

1. Identifying changes:

Technology Integration. The implementation of digital management requires the integration of new technologies such as data management systems, artificial intelligence, big data analytics, etc [7-9]. It is necessary to assess how these technologies will fit into existing business processes and how they will interact with existing systems.

Staff training. The transition to digital management involves training staff in new skills and digital competencies. This includes not only learning new tools, but also understanding digital processes and ways of working.

Culture change. Digital management may require a change in corporate culture and approaches to work. This includes adopting more agile management practices, emphasizing innovation, and making decisions quickly.

2. Finding Differences:

Borderless Teams. Unlike traditional management, where the formation of management teams is limited territorially, digital management enables team building across geographical barriers. This opens up new opportunities for global collaboration.

Recruitment criteria. With digital management, recruitment criteria will be supplemented not only by professional competencies, but also by digital skills [10]. This is important to work effectively in an environment where digital technologies play a key role.

Responsiveness of decisions. In traditional management, operational decisions can take hours or even days. In digital management using artificial intelligence, operational decisions can be made in real time, increasing the agility and adaptability of the enterprise to changing conditions.

The introduction of digital management requires in-depth analysis, changes in corporate culture and employee skills, as well as strategic thinking regarding the future development of the enterprise in the digital economy [11].

Results and discussions

The conclusion about the current trends in the development of digital management is very reasonable and reflects the key trends in the evolution of modern management practices. Let's take a closer look at each of the highlighted trends:

Empowerment through cloud technologies

Benefits - cloud technology provides flexibility and scalability, allowing data to be managed and shared remotely. It also reduces the need for large infrastructure investments and provides the convenience of accessing data from anywhere in the world [12].

Challenges - it is important to consider data security issues and select reliable cloud service providers.

Advances in remote access technologies

Benefits - remote access technologies increase the flexibility of workflows by allowing management personnel to access important resources regardless of location.

Challenges - the need to secure data transmission and access systems remotely.

Increased mobility of management staff

Benefits - mobility of management personnel facilitates quick and informed decisions, improves communication and real-time response to change.

Challenges - security of mobile devices and data, and the need for effective tools to manage mobile business processes.

Adaptation of the management team to adopt new digital technologies

Benefits - promotes better management and decision making. Enables the use of data to shape strategy and optimize business processes [13].

Challenges - need for continuous training and skills development, as well as changing corporate culture.

Increasing digital management space

Benefits - the digital space provides new opportunities for data visualization, analytics, and data-driven decision making.

Challenges - the need to train staff on new technologies and ongoing information security support.

Decisions to incorporate digital technologies into the management of an enterprise do have a global impact on its operations.

The need for careful planning, risk consideration, and comprehensive technology redesign emphasizes the importance of combined management and information technology knowledge to successfully adapt to the demands of the digital economy [14].

Conclusions. Radical work is needed to realize all the advantages of the modern stage of economic development. The basis of this work is the digitalization of the management process.

Extensive research work is required to maximize the benefits of the modern stage of economic development. The main focus is the digitalization of management processes, which becomes a key element of effective management in the modern economy.

In conclusion, it can be said that the transition to digitalization, implementation of digital management in modern management is an integral part of development and progress. Such technologies and innovations play a key role in improving the efficiency and optimization of management processes. They make it possible to automate and simplify many tasks, improve the accuracy of decision-making, and ensure more flexible and adaptive management.

However, the shift to digitalization also presents some challenges related to data security, staff training and the integration of new technologies. However, with the right approach and strategy, digitalization and digital management can be powerful tools to achieve competitive advantage and improve results in modern management.

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БОЛАЛАРГА ГИМНАСТИКА МАШҚЛАРИНИ ЎРГАТИШ МЕТОДИКАСИ

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Фаргона давлат университети жисмоний маданият факультети жисмоний тарбия ва спорт ўйинларини ўқитиш методикаси кафедраси катта ўқитувчиси

Аннотация: Мақолада гимнастика машғулоти жараёнида болalarda жисмоний сифатларни тарбиялашнинг услубий асослар дастлабки тайёргарлик гуруҳига мўлжалланган тренировка воситаларини тузилиш тартиби ва уларни тақсимоли мисолида ёритиб берилган.

Калит сўзлар: Сакраш, ўтириш, осилиш, улоқтириш, гимнастик снарядларда машқ бажариш, таяниш, оддий ушлаш, таяниб туриб тебраниш, олдинга силтаниш, олдинга тебранганда кутарилиши.

Кириш. Мамлакатимиз Президенти Шавкат Мирзиёевни бевосита ташаббуси ва раҳбарлигида қабул қилинган ва изчил амалга оширилаётган Ўзбекистон республикасини ривожлантиришнинг бешта устивор йўналиш бўйича Ҳаракатлар стратегияси Ўзбекистон тараққиётини янги босқичини бошлаб берди. Бу стратегия энг авало ҳуқуқий демократик давлат кўринишидаги халқ давлати қурилишига олиб келди. Мамлакатимиз барча жабхаларда жадал ривожланиш даврларига ўтмоқда. Шу ривожланишлардан бири узликсиз таълим ва фанни ривожланишидир. Таълим ва фан соҳасини ривожлантириш давлат сиёсатини маъно мазмунидан келиб чиққан янги замонавий технологияларга ўтиш ва уни республикада қўллаш ва самарали ишлатиш учун интеллектуал салоҳиятли кадрлар етишиб чиқмоқда. Узликсиз таълимда ўзгаришлар бўлади ва 11 йиллик таълим тизими барпо қилинади.

Урғу бериш лозимки, мамлакатимизда Республика Президентининг фармони билан «Ўзбекистон болалар спортини ривожлантириш жамғармасини ташкил этилиши» ва уни босқичма-босқич амалга оширилиши ўзбек спортини, жумладан, болалар спортини тамомила янгича йўналишда шаклланишига тurtки бўлмоқда.

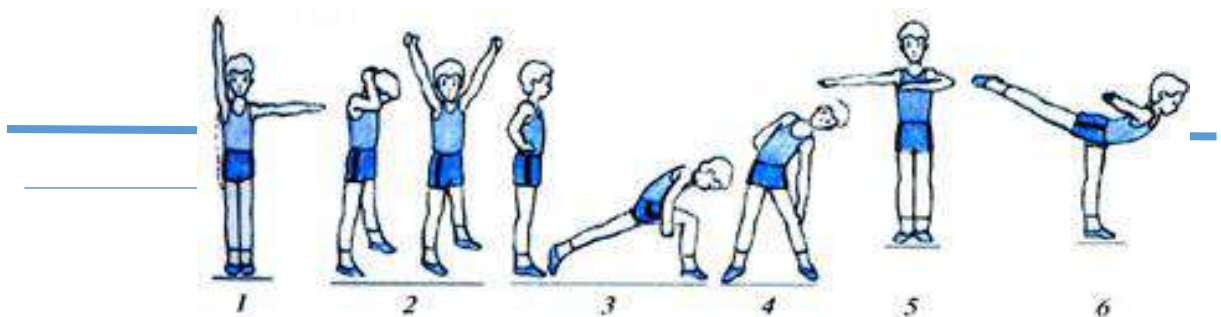
Махсус жисмоний тайёргарлик воситаларини мусобақа машқлари мазмуни ва хусусиятларига яқин ёки мос бўлиши мақсадга мувофиқдир. Гимнастикачилар жисмоний сифатларини ривожлантириш услублари ва воситаларини ўрганиш шуни кўрсатадики, кўпгина спортчилар 1 разряд ва спорт усталигига номзод даражасига етгандан сўнг тайёргарликнинг айрим

кўрсаткичлари бўйича аввалги босқичларда заиф ўзлаштирилган сифат ва ҳаракат малакалари (элементлари)га қайтиш ҳоллари учраб туради. Бунга эса талайгина вақт сарфланади. Айрим спортчилар етарли жисмоний тайёрларликка эга бўлсаларда техник жihatдан мураккаб бўлган қатор элементларни қўлларни букиб ижро этадилар (замонавий гимнастикада барча элементлар ёзган ҳолатда бажарилади) ёки элементнинг якуний қисмида «гимнастик қоматни» сақлаб қололмайдилар. Статистика натижалари шуни кўрсатадики, 80-90% қобилиятли гимнастикачилар спорт усталигига номзод даражасида кўтарила олмайдилар. Спорт усталиги даражасига фақат айрим спортчиларгина эришади.

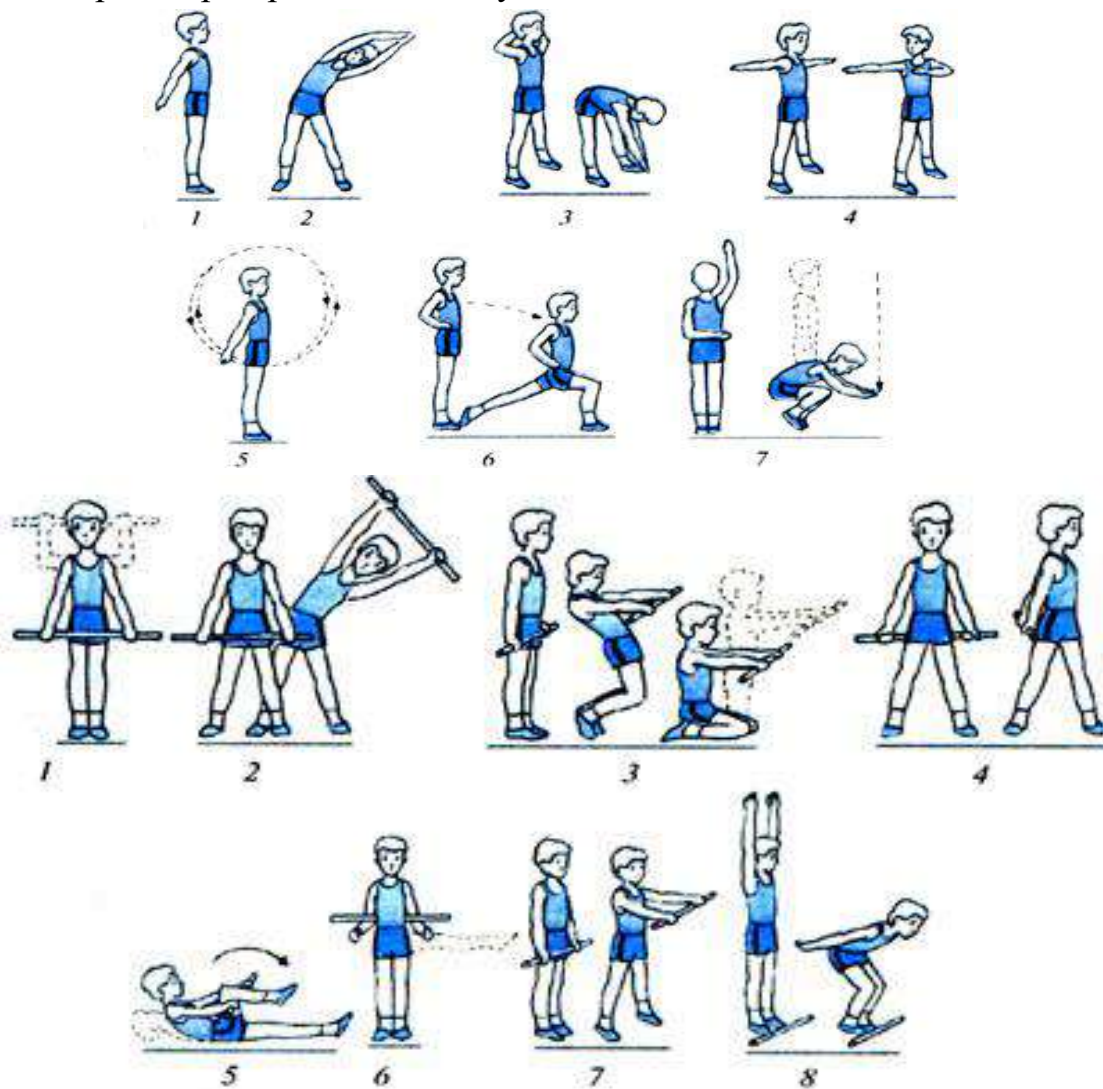
Ёш гимнастикачилар жисмоний тайёргарлигини ўрганиш шуни кўрсатадики, уларнинг машғулотларида мусобақа машқлари хусусиятига мос ҳамда жисмоний ва техник тайёргарликка барабар таъсир этувчи принципда қўлланиладиган машқлар етарли даражада ўз ифодасини топмайди. Ушбу принципда қўлланиладиган машқлардан одатда тренерлар тайёргарликнинг анча кейинги босқичларида фойдаланадилар. Махкур машқларни қўллашда асосий эътибор қўл ва оёқларни «ёзувчи» ва «олиб келувчи» (дастлабки ҳолатга) мушаклар ҳаракати сифатларини тарбиялашга қаратилди.

Ҳаракат функциясини шакллантиришда (энг муҳими) учинчи таркибий қисм ҳаракатларини вақт бирлигида фазода ва мускул зўр берилишини даражасига қараб ҳис қила билишини ўрганишдан иборат. Ҳаракат аниқлиги ва координацияси яхши ривожланган мускул сезгиси орқали таъминланади. Бу эса, ҳаракат анализатори фаолиятининг натижасидир. Ҳаракат анализаторининг фаолиятини фақат жисмоний машқлар ёрдамида махсус машқ қисми орқали такомиллаштириш мумкин. Бундай қобилиятни тарбиялаш учун тананинг айрим қисмлари билан оддий ҳамда мураккаб ҳаракатлар кишидан юриш, югуриш, сакраш, улоқтириш, акробатика машқларидан фойдаланадилар.

Шуғулланувчилар бу машқларни бажараётганда ўзларининг фазо тўғрисидаги ва ҳаракат фаолиятини бажариш учун сарфлайдиган вақт тўғрисидаги субъектив ҳисларни ўқитувчидан оладиган маълумотларга таққослаб кўришлари керак. Ҳаракат фаолияти жараёнида вақт, фазо ва мускул зўр беришнинг даражаси ҳақида тез ва бевосита маълумотлар ҳажмига нисбатан ҳиссиётини таркиб топишига ёрдамлашади, бу эса ҳаракатларни бошқариш учун жуда муҳимдир. Ҳаракат фаолиятини онгли



бошқариш сезги органларининг ривожланиши билан чамбарчас боғлиқдир, чунки сезги органлари орқали ташқи дунё ҳис қилинади.



Махсус текширишлар ва ҳаракатларни фазода вақт бирлигида ва мускул зўр бериши даражасини ҳис қилишни ўзлаштириб олган болалар турли ҳаракат фаолиятларини бунга ўргатилмаган болаларга нисбатан муваффақиятлироқ бажарадилар.

Болаларга гимнастика машқларини ўргатиш методикаси. Уйда, ҳовлида тенгдошлари билан топшириқларни бажараётганда қуйидаги қоидаларга риоя қилиш керак:

Машқни бажаришда жуда мураккаб бўлмаганидан бошлаш керак.

Касал бўлиб қолсангиз ёки ўзингизни ёмон ҳис қилсангиз, яхшиси машғулот билан шуғулланманг.

Жисмоний тарбия машғулотлари оч ҳолда ёки тўйиб овқатланмасдан ёки унчалик тўқ бўлмасдан, бирданига бажариш мумкин эмас.

Машқларни хоҳлаб мазза қилиб бажариб, орада 2-3 дақиқа танаффус қилиш.

Олинган юкламани томир уришидан аниқлашни ўргатиш.

Мускулларни кучини ривожлантириш, қоматни тўғри шакллантириш учун катта аҳамиятга эга. Оёқ мускулларини, айниқса оёқ тагини тўғри ҳолатда ушлаб турувчи, кўндаланг ва узунасига жойлашган мускулларни мустаҳкамлаш, ҳаракат фаолияти учун ва ялпоқ оёқликнинг олдини олиш учун жуда муҳимдир. Оёқ кафти суяклари 16-18 ёшларда қотади.

Кичик ёшидаги болалар 80 см дан ортиқ баландликдан қаттиқ жойга сакраш ва машқларни узоқ ва тик туриб бажариши мумкин эмас. Актив мускул фаолияти орқали организмдаги модда алмашинувига бўйинни ўсиши ва барча орган ҳамда системаларнинг ривожланишига таъсир қиладиган вегетатив функцияларни фаоллаштириш керак.

Кичик ёшдаги болалар яъни, 8-9-ёшидаги болалар учун гимнастиканинг қуйидаги машқлари тавсия қилинади: юриш, югуриш, қия қилиб қўйилган скамейка, гимнастика девори, нарвонга тирмашиб чиқиш, баландлиги 1 метр бўлган тўсиқлардан ошиб ўтиш, тўпларни улоқтириш, тўлдирма тўпларни кўтариб отиш, куракларга таяниб туриш.

Бу ёшдаги болалар аввал кўриб, кейин бажарадилар. Улар машқларни кўпинча яхши бажариши ўрнига, ёмон муваффақиятсиз бажарадилар.

Ўғил болалар 12 ёшгача, қизлар 11 ёшгача иккинчи болалик даврида, 12-13 ёшдаги қизлар ва 13-14 ёшдаги ўғил болалар ҳам ўсмирлар қаторига кирадилар. Ўрта ёшидаги болаларнинг ўсиши ва ривожланиши бир текис бўлмайди. Йигит ва қизларни асосий гимнастик машғулотлари мазмунан жиддий фарқ қилади. Шу боис, алоҳида ўтказилади. Йигитлар бу даврда асосий амалий ҳаракат малакаларини яхши эгаллаб олишлари керак.

Айниқса, улар табиий ва сунъий тўсиқлардан ошиб ўтиши ҳар бир оғирликдаги тўпларни узоққа ва нишонга отишни, арқонга тирмашиб чиқишни, одамларни ва турли буюмларни кўтариб юриш усулларини билишлари, куч билан ва тўнтарилиб олишлари, ёнга ва олдинга тўнтаришларни бажара олишлари лозим. Бу машқларни бажариш машғулотлар жараёнида кучлилик, бардамлик, чидамайлик, жисмоний сифатлар, матонатлийлик, меҳнатсеварлик, мураккаб ва қийин машқларни бажаришга интилиш каби ҳисларни тарбиялашни, шу билан бирга қизларни чаққонлигини, тезлигини ва бардошлигини такомиллаштириш керак. Чунки, 8-9-ёшидаги болалар ривожланиш даврида айниқса, даврида ўсиш олдинга қараб кетади.

Хулоса

1. Ўқув-тренировка жараёнида жисмоний сифатларни ривожлантирувчи машқларни танлашда шу машқларни дастлабки

тайёргарлик босқичида шуғулланувчи гимнастикачиларнинг классификацион дастурига кирувчи машқларга мувофиқ бўлиши эътиборга олинishi зарур.

2. 8-9 ёшли болаларда жисмоний тайёргарлик бўйича ўтказиладиган машғулотларнинг асосий ҳажми ўйин воситаларидан иборат бўлиши муҳим ва бундай воситалар заиф ривожланган мушаклар ҳамда суяк-бўғим тизимларини шакллантиришга қаратилиши керак. Ушбу ўйин машқларини қуйидаги тартибда қўллаш мақсадга мувофиқдир: аввал «ким тўғрироқ ижро этади», «ким аниқроқ», сўнг «ким тезроқ», «ким кўпроқ». Ўйин машқларига шундай ёндашиш ҳаракат малакаларини шаклланиш суръатини жадаллаштиради.

3. Ёш гимнастикачилар жисмоний ва техник тайёргарлиги шакллана борган сари танланган махсус машқлар ёрдамида болалар ва ўсмирлар спорт натижалари юксалишини таъминловчи жисмоний сифатларни ривожлантириш даркор бўлади. Бунда асосий эътиборни ижрочи органларни танадан узоқлаштирувчи ва унга яқинлаштирувчи машқларга қаратиш тавсия этилади.

4. Машғулотни дастлабки қисмида чаққонлик, тезкорлик, эгилувчанлик, асосий қисмида – тезкорлик-куч сифатлари ва куч, якуний қисмида - чидамкорликни ривожлантирувчи машқлар мажмуаларини қўллаш муҳим бўлади.

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INSONNING JISMONIY HARAKAT FAOLIYATLARI VA ULARNING TAVSIFI

Abdullayev Abduvali

Jismoniy tarbiya nazariyasi kafedراسi professori, pedagogika fanlari nomzodi

Akmalxonova Husnida

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Annotatsiya. Maqolada inson harakatlari va ularning kundalik turmushda foydalanishga mansub harakatlarning tavsiflari hamda harakat faoliyatlarining tavsiflay olish malakasini shakllantirish metodikasiga oid o'quv materiallari berilgan.

Kalit so'zlar. Harakat faoliyati, jismoniy mashqlar, fazo-makon, vaqt birligi, "Ijtimoiy", "ta'limiy", "biologik", "tabiat", "hayotiy quvvatini", tananing holati - pozasi.

Jismoniy madaniyat va sport sohasi mahsus adabiyotlari taxlili, ilmiy tadqiqotlarning natijalari bashariyat ahlining jismi harakatlari eng avvalo "ijtimoiy", "ta'limiy", "biologik", "tabiat" qonuniyatlar asosida yuzaga kelishi, shakllanishi, takomillashishi bilan o'zining fundamental asosiga ega. Shuning uchun ham insonning harakatlari turkumi qayd qilingan qonuniyatlar asosida yuzaga keladi, shakllanadi, jismoniy madaniyat ta'limi va tarbiyasi jarayonida qo'llaniladi.

Akademik L.P.Matveyev "har qanday harakat avvalo harakat aktlari (harakat faoliyatining alohida bo'lagi, parchalari)dan, ularning yig'indisi – birnechasi esa to'plami harakat faoliyatini yuzaga keltiradi" deb yozadi.

Ular jismimiz a'zolarini mashqlantirish vositasi, hozirgi kunda jismoniy madaniyat ta'limi vositasi – "jismoniy mashqlar" yoki "ongli ravishda maqsadli bajariladigan harakat faoliyatlari" deb nomlanadi.

Akademik jismoniy mashqlarga " ...harakat faoliyatlarining shunday xiliki, ular jismoniy tarbiyani vazifalarini (alohida yoki bir butun to'plamini)hal qilishga yo'naltiriluvchi va jismoniy tarbiya jarayoni qonuniyatlariga to'liq javob beruvchi harakat faoliyatlaridir" deb ta'rif bergan.

Demak, harqanday harakat faoliyati jismoniy mashq vazifasini bajarishi mumkin degan xulosaga kelishimiz noto'g'ri. Akademikning fikricha faqat jismoniy tarbiya jarayoni qonuniyatlariga to'liq javob beradigan harakat

faoliyatlarigina jismoniy madaniyat ta'limi va tarbiyasining asosiy vositasi, ya'ni jismoniy mashq bo'laoladi.

Ayrim mualliflar (B.A.Ashmarin, 1991; A.Abdullayev, Sh.X.Xankeldiyev, 2005; Yu.M.Yunusova, 2005; A.A.Vasilkov,2008; A.M.Maksimenko, 2009; J.K.Xolodov, V.S Kuznesov, 2014.) va boshqalarning Oliy o'quv yurtlari bakalavriyati talabalari uchun yozilgan jismoniy madaniyat nazariyasi va metodikasiga mansub darsliklari va qo'llanmalarida:“ ... ongli,ixtiyoriy ravishda bajariladigan, jismoniy madaniyat va jismoniy tarbiya jarayonining umumiy qonuniyatlariga javob beradigan maqsadli va manzilli harakat faoliyatlari “jismoniy mashqlar” - deb ataladi deb ta'rif berilgan.

Qayd qilingan ta'riflar oxirgisi emas. Jismoniy madaniyat tushunchasini hozirgi kunda 200 dan ortiq ta'rifi mavjud bo'lganidek, jismoniy mashqlar tushunchasiga ham turli xildagi ta'riflar mavjud.Shuning uchun ham jismoniy mashqlar boshqa harakat faoliyatlaridan jismoniy tarbiya qonuniyatlariga javob berishi, harakat faoliyatlarini mazmuni, mohiyati, shakli, hal qiladigan vazifalariga mansub maxsus bilimlari bilan farqlanadi.Shuning uchun ham harqanday hrakat faoliyati yoki jismoniy mashq ko'rinishidagi harakatlar jismimiz tarbiyasida vosita



rolini bajaraolmasligining sababi ham shunda.

Pedagog, vrach, anatom, jismoniy tarbiya nazariyasining sobiq Ittifoq davrida otasi deb nom olgan Ulug' rus olimi P.F. Lesgaftning “... har bir shaxs bolaligidan boshlab o'zining harakatlarini taxlil qilishni bilishi zarur” - degan fikri mohiyatiga ko'ra hozirgacha ham o'zining ahamiyatini yo'qotgani yo'q.

Jismoniy madaniyat nazariyasi, jismoniy madaniyat ta'limi, jismoniy tarbiya fani, sport mutaxassislari, qolaversa, jamiyatimiz a'zolarining barchasi kundalik turmush tarzida amalda foydalanayotgan barcha harakat aktlari yoki harakat faoliyatlarini tahlil qilish malaksiga ega bo'lishlari turmush tarzining, inson

hayotining barcha davrining doimiy talabi ekanligini nazarda tutilishi shart. Sobiq Ittifoq davri jismoniy madaniyati tizimining otasi P.F.Lesgaftning XIX asrning ikkinchi yarimidagi bu fikri dolzarb va yana qator yillar o'zining ahamiyatini yo'qotmagan.

1-chizma

HARAKAT FAOLIYATLARINING TAVSIFLAY OLISH MALAKALARINING HAYOTIY-AMALIY AHAMIYATI



Insonni o'z harakat faoliyatlarini taxlil qilish malakasi, o'zining harakatlarni tavsiflay olishi individ uchun nima beradi deb savol qo'yib, unga javob bersak yoki o'zini, raqibini, sherigini harakat faoliyatlarini taxlililida nimalarga e'tibor berishlari lozimligini farqlash malakasi sohibi bo'lish kerakligini bilishimiz lozim bo'ladi. Ular: brinchidan –individ jismining umri davomda sarflash uchun berilgan "hayotiy quvvat"ni tejab(iqtisod qilib) sarflash malakasiga ega ekanligini taxlil qilishimiz lozim bo'ladi;

ikkinchidan–harakatni bajarishda ishtirok etadigan vujudi a’zolari va tuzilmalarini tanasida joylashishi, ularni xizmatlari haqidagi boshlang‘ich maxsus nazariy bilimlar sohibiga aylanadi;

uchinchidan– harakatlarni bajarish ketma-ketligida sodir bo‘ladigan ortiqcha zo‘riqishlar, harakat ijrosidagi hatolarni aniqlash, ularni sodir bo‘lishini oldini olish, uni tuzatish va takomillashtirishmalakasiga ega bo‘ladi;

to‘rtinchidan - harakatlarning ijrosida vjudi a’zolarini fazoda (bo‘shliqda)holatini xis qilish, zarur bo‘lsa uni boshqarish, bajarilayotganni(akrobatni, suvga sakrovchilarni, gimnastlarni jihozdan, mashq bajarayotgan snaryaddan ajralgandan so‘ng bo‘shliqda(fazoda) vjudi a’zolarini, uni ayrim qismlari, bo‘laklarining harakatlarini boshqaraolishi (tanani yoki uni ayrim bo‘laklari, qismlarini yoyish, yig‘ib olish, cho‘zish, bukish, eshish, aylantirishi va boshqalarni bajarishda ortiqcha mushak zo‘riqishi, harakat sifatleri) uchun quvvat sarflash, uni tejashni o‘rganadi.

Eng muhimi ular haqida nazariy tushunchaga ega bo‘lish harakat texnikasini o‘zlashtirishda, uni ijrosida mushaklar,ularni tolasi(yo‘g‘on, ingichkaligi, tolaning elastikligi, cho‘ziluvchanligi, ularda qo‘zg‘olish va tormozlanishga mansub signallarini o‘tkazish tezligi, harakatni ma’lum nuqtasida shikastlanishga sabab bo‘ladigan harakat tarkibidagi chegara harakatlar, undan oshib ketsa sodir bo‘lishi mumkin bo‘ladigan kerak, nokerak holatlar haqida bilimlarga ega bo‘ladi.

Bo‘g‘inlarning harakati chegarasi,ularni bog‘lovchilarining pishiqligi, egiluvchanligi, cho‘zilaolishi, ijrodagi harakatning yo‘li, bajarishdagi harakat amplitudasining ohirgi tochkasi, harakatni boshlash uchun rasional va optimal holatlar(dastlabki holatlar)ni tashqaridan ko‘rinishi tinch oddiy turgandek ko‘rinsada organizm katta ish bajarishga funksional tayyorgarlik ko‘rayotganligi va boshqalarga oid maxsus bilimlar, harakat elementlarinifazoda, birmuncha vaqt ichidagi bajariladigan elementlarini zurur bo‘lgan darajada namoyon qilish malakasi haqidagi tushunchalar.

beshinchidan–harakatni yo‘li, bajarishdagi zaruriy trayektoriyani tanlash, undan foydalanish, ortiqcha quvvat sarflash, shu harakat uchun zarur bo‘lmagan qo‘shimcha harakatlarni yuzaga kelishini oldi olinadi va boshqalar;

oltinchidan -harakatning yo‘nalishi haqida tasavvuri shakllanadi. Masalan, sirk artistlari bajarayotgan harakatlarining mazmunidagi harakat elementlari ijrosiga e’tibor bersak ular bajarayotgan barcha harakat faoliyatlari yoki ularning harakat aktiga to‘liq quvvat sarflamay, aynan shu harakatning o‘zak (asosiy) qismi uchungina mushak zo‘riqishi qilayotganligini, quvvat sarflash taomilini egallaganligini, ularga oid malakalarni bajarish mahoratini kuzatamiz.

yettinchidan-bajarish uchun sarflangan, sarflanadigan harakat vaqti, davomiyligi, harakatni sura’ti, kuchi, lozim bo‘lgan darajadagi tezligi, harakatning

yo‘li, amplitudasi va ritmini hamda mushak zo‘riqishini qilabiladilar. Shuning uchun ham harbir shaxs o‘zining harakatlarini tavsiflash malakasiga ega bo‘lishi zaruriyat.

Qator harakatlarni bajarishda tananing holati - pozasi muhim ahamiyatga ega ekanligi, belgilangan holatni – pozani egallamaslik (bo‘g‘inlar, tananing bo‘laklari), fazoda alohida namoyon qilinadigan harakatlarni, ularning belgilangan elementlari ko‘rinishini yuzaga keltirishda ahamiyati muhim bo‘ladi.

Masalan, gavda qismlarini fazoda bir tomonga og‘ishi, bukilishi, yig‘ishtirilishi, yozilishi, eshilishi, aylantirilishi (akrobat, gimnast, suvga sakrovchi, figurali uchish sporti sportchisi va boshqalar)ning fazodagi harakatlarida vjudi va uning alohida bo‘laklarinicho‘zilishi va boshqa qator holatlarni kuzatamiz yoki o‘zimiz harakatni bajarishimizda, namoyon qilishimizga to‘g‘ri keladi.

Yuqoridagilardan kelib chiqib xulosa qilsak jamiyatimiz a‘zolari yoshidan qat’iy nazar o‘zining, tengdoshining, hamkasbining, zamondoshining harakat faoliyatlarini shakllanganligi darajasi haqida tasavvurga ega bo‘lishi, ularni tavsiflay olishi uning jismoniy madaniyati darajasi va unga oid maxsus bilimlarining mazmuniga egaligidan dalolatdir. Oxir oqibat bu uning salomatligi darajasiga borib taqaladi. “Salomatlikni saqlash” harakat orqali amalga oshiriladigan o‘ta og‘ir mehnat” - deb yozadi ulug‘ rus pedagogigi V.A.Suxomliyeskiy.

Xulosa qilib shuni aytishimiz mumkinki, mamlakatimizning o‘quv muassasalari davlat dasturlarida shug‘ullanuvchi o‘quvchi-talaba yoshlarning harakatlarni o‘zlashtirishga oid bilim va malakalar beruvchi nazariy va amaliy o‘quv materialining mohiyati, ularni o‘zlashtirishda zarur bo‘lgan harakat malakalariga oid ma’lumotlar hozirgi kun jismoniy madaniyat ta’limi jarayonining zamonaviy talablarida darajasida bo‘lishi uchun zaruriy bilimlar bankini yaratish lozim.

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UMUMIY O‘RTA TA‘LIM MAKTAB O‘QUVCHILARNING JISMONIY TARBIYA DARSLARIGA MUNOSABATI

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Annotatsiya: *Umumiy o‘rta ta‘lim maktab o‘quvchilarning jismoniy tarbiya darslariga munosabati va sport musobaqalarni uyushtirishning holatini aniqlashtirish masalalari yoritilgan.*

Kalit so‘zlar: *Jismoniy tarbiya, sport, sport musobaqa, intellektual.*

Dolzarbligi. Jismoniy tarbiya va ommaviy sportni yanada rivojlantirishga yo‘naltirilgan keng ko‘lamli ishlarni amalga oshirish bugungi kunimizning dolzarb muammolaridan biri bo‘lib sanaladi. Shu maqsadda O‘zbekiston Respublikasining Prezidenti Shavkat Mirziyoev 2017 yil 3 iyundagi, PQ-3031-son qarori jumladan “Jismoniy tarbiya va ommaviy sportni yanada rivojlantirish chora tadbirlari to‘g‘risidagi” hamda 2018 yil 5 martdagi “Jismoniy tarbiya va sport sohasida davlat boshqaruvi tizimini tubdan takomillashtirish chora-tadbirlari to‘g‘risida”gi PF-5368-son Farmonida mamlakatda aholini ayniqsa yosh avlodning jismoniy tarbiya va ommaviy sport bilan muntazam shug‘ullanishi uchun zamon talablariga mos shart-sharoitlar yaratish, iqtidorli sportchilarni saralab olish maqsadli tayyorlash ishlarini tizimli tashkil etish borasida keng ko‘lamli ishlar amalga oshirish vazifasi yuklatildi. [1,2]. Bu esa O‘zbekistonda jismoniy tarbiya va sportni ommalashtirish, aholi, ayniqsa yoshlar o‘rtasida sog‘lom turmush tarzini targ‘ib qilish uchun zarur shart-sharoitlar va infratuzulmani yaratish, mamlakatning xalqaro maydonlarida munosib ishtirok etishini ta‘minlash borasida izchil chora-tadbirlarni ishlab chiqish lozimligini belgilab beradi [4].

O‘zbekiston Respublikasi Prezidentining 2020 yil 24 yanvardagi “O‘zbekiston Respublikasida Jismoniy tarbiya va sportni yanada takomillashtirish va ommalashtirish chora-tadbirlari to‘g‘risida” PF-5924-sonli farmonida aholining keng qatlamlari, jumladan umumta‘lim maktabi o‘quvchilari, professional va oliy ta‘lim muassasalari o‘quvchi va talabalari o‘rtasida jismoniy tarbiyani ommalashtirish, ular orasida iqtidorlilarini aniqlash maqsadida «Umumta‘lim maktab sporti» festivali, «Jismoniy tayyorgarligi rivojlangan muassasa» ko‘rik-

tanlovini bosqichma-bosqich (tuman/shahar, hudud, respublika) o'tkazish tizimini ishlab chiqish va jismoniy tayyorgarlik darajasi rivojlangan eng yaxshi umumta'lim maktabi, professional va oliy ta'lim muassasasi nominatsiyasini joriy etish" - ta'kidlab o'tilgan [3,6].

Umumiy o'rta ta'lim maktab o'quvchilarning jismoniy tarbiya darslariga munosabatini shakllantirishning xususiyatlarini aniqlash jismoniy tarbiya darslarini o'zlashtirilgan bilim darajasini va jismoniy tayyorgarlikni o'rganish orqali amalga oshirilishi maqsadga muvofiqdir. O'sib kelayotgan yosh avlod - o'quvchilarning jismoniy tarbiya bilan bog'liq bo'lgan sog'lom turmush tarzi singari muhim qadriyatlarga munosabatini o'rganish masalasi dolzarb bo'lib qolmoqda.

Ishning maqsadi – Umumiy o'rta ta'lim maktab o'quvchilarning o'tkazilayotgan sport musobaqalarda jismoniy tarbiya bilan bog'liq bo'lgan sog'lom turmush tarziga munosabatini aniqlashtirish hamda mazkur masalaning amaliy ahamiyatini aniqlash.

Tadqiqot usullari –anketa-so'rov o'tkazish, ilmiy-uslubiy adabiyotlar tahlili, ilg'or tajribani o'rganish va umumlashtirish.

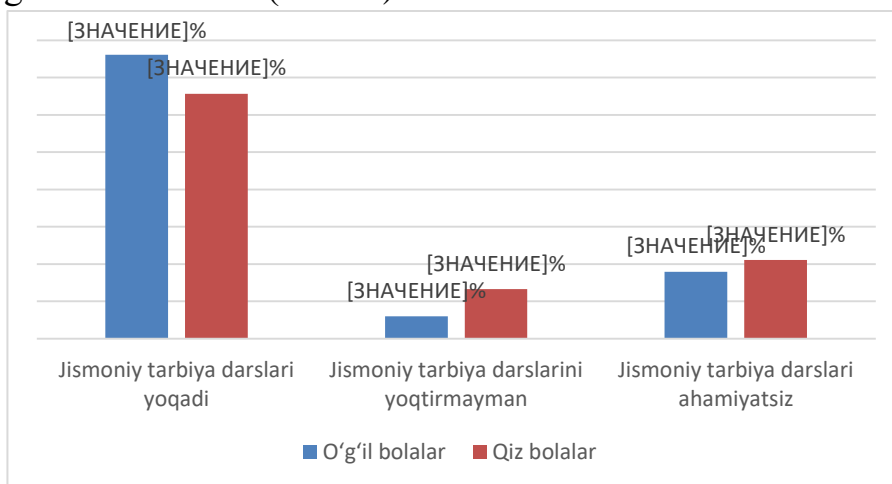
Hozirgi kunda rivojlangan mamlakatlarning maktablarida jismoniy tarbiya darslarini tashkil etishda innovatsion – texnologiyalardan foydalanib kelishmoqda. O'quvchilarning bo'sh vaqtlarini unumli o'tkazishda maktabda sport musobaqalarini uyushtirish bo'yicha mustaxkam tizim ishlab chiqilgan. Bu tizim maktab o'quvchilarining sog'lom turmush tarzini shakllantirishda muhim omil hisoblanadi. O'quvchilarning jismoniy tarbiya dars mobaynida maksimal tarzda jismoniy tarbiya bilan shug'ullanishlarini, darsdan bo'sh vaqtlarida o'quvchilar sport musobaqalarini tashkil etish orqali o'quvchilarga sog'lom turmush tarzini targ'ib etishda muhim amaliy ishlardandir.

Ishimizning maqsadidan kelib chiqqan holda, biz, umumiy o'rta ta'lim maktab o'quvchilari bilan jismoniy tarbiya faniga bo'lgan munosabati, o'tkazilayotgan sport musobaqalar haqidagi ma'lumotlarni o'rganish yuzasidan onlayn va offlayn tarzda anketa-so'rovnoma o'tkazdik.

Tadqiqotning natijalari va muhokamasi. Tadqiqotlarda Farg'ona shahridagi umumiy o'rta ta'lim maktablaridagi 262 nafar o'quvchilari (134 o'g'il bolalar va 128 qiz bolalar) onlayn va offlayn tarzda anketa-so'rovnomada ishtirok etishdi.

Onlayn va offlayn tarzda anketa-so'rovnoma ishtirok etgan o'quvchilar "Jismoniy tarbiya darslarini muhim ahamiyatga ega darsmi?" -degan savolga natijalariga ko'ra, ta'lim bosqichidagi o'qitilayotgan fanlarni ahamiyatlilik darajasi bo'yicha tahlil qilinganda 76,1% o'g'il bolalar va 65,6% qiz bolalar "Jismoniy tarbiya" fanini ustivor fan sifatida belgilaganlar. Shu bilan birga, yoshi ulg'ayib borgan sari jismoniy tarbiya mashg'ulotlariga qiziqish ham ortib borishi kuzatildi. Ahamiyatlilik darajasi bo'yicha keyingi o'rinlarga informatika, texnologiya, tarix, geografiya fanlari joylashgan.

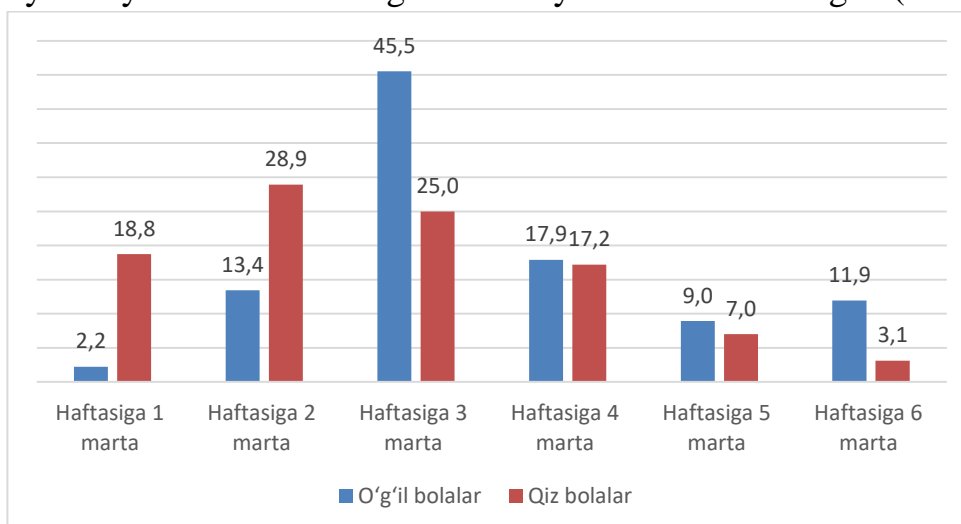
Shuningdek, jismoniy tarbiya darslariga 6% o'g'il bolalar va 13,3% qiz bolalar salbiy, 17,9% o'g'il bolalar va 21,1% qiz bolalar befarq munosabatda ekanligi ma'lum bo'ldi (1-rasm).



1-rasm. Respondentlarning “Jismoniy tarbiya darslarini muhim ahamiyatga ega darsmi?” savolga javoblari natijalari

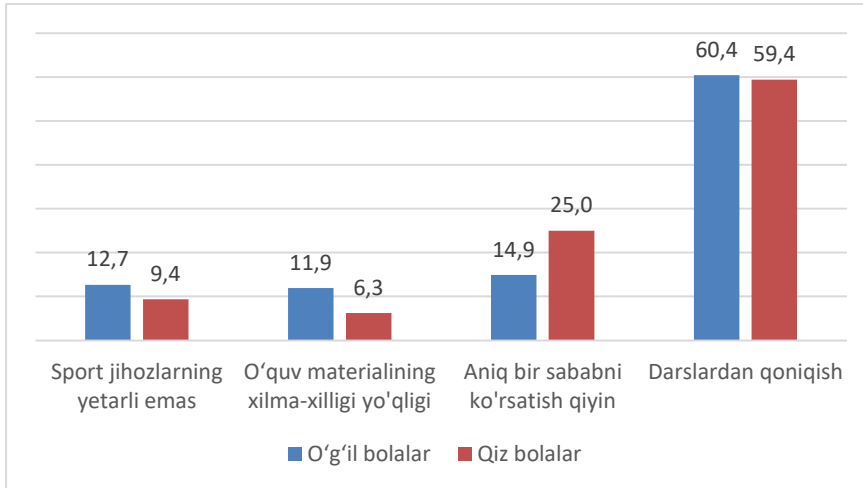
Respondentlarga “Siz haftada necha marta jismoniy tarbiya dars bo‘lishini xohlaysiz?” -degan savolga o‘g‘il bolalar 45,5% va qiz bolalar 25% davlat ta‘lim standartlarida belgilanganidan ko‘proq jismoniy tarbiya darslarini haftasiga 3 marta shug‘ullanish istagini bildirgan.

Shuningdek 13,4% o‘g‘il bolalar va 28,9% qiz bolalar darslar sonini haftasiga 2 marta yetarli bo‘lishini. 17,9% o‘g‘il bolalar va 17,2% qiz bolalar haftasiga 4 marta, 9% o‘g‘il bolalar va 7% qiz bolalar haftasiga 5 marta, 11,9% o‘g‘il bolalar va 3,1% qiz bolalar haftasiga 6 marta bo‘lish istagini bildirgan. Shuningdek, so‘rovnomada ishtirok etgan 2,2% o‘g‘il bolalar va 18,8% qiz bolalar jismoniy tarbiya darslari haftasiga 1 marta yetarli deb hisoblagan (2-rasm).



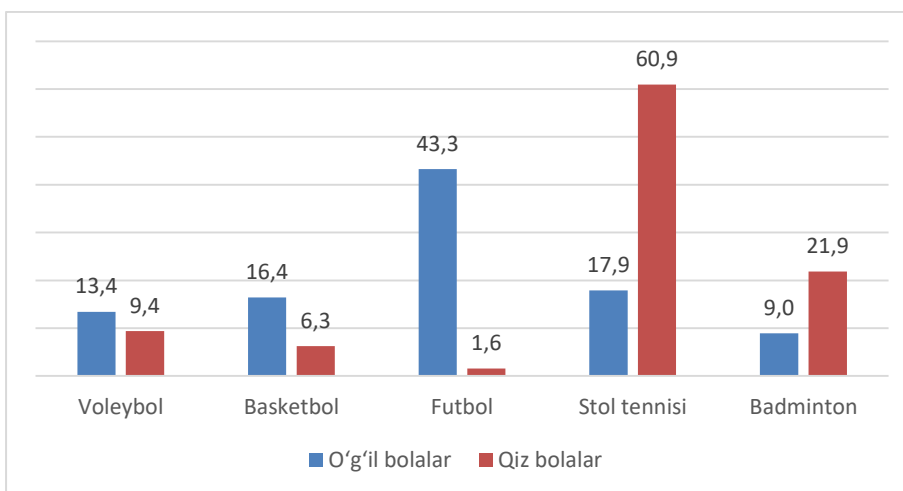
2-rasm. Respondentlarning “Siz haftada necha marta jismoniy tarbiya dars bo‘lishini xohlaysiz?”- degan savolga javoblari natijalari

Jismoniy tarbiya darslariga salbiy munosabatning sabablari bo'yicha respondentlarga "Jismoniy tarbiya darslarida sizga nima yoqmaydi?"- degan savolga javoblari bo'yicha 12,7% o'g'il bolalarning va 9,4% qizlar sport jihozlarning yetarli emasligi, 11,9% o'g'il bolalarning va 6,3% qizlar o'quv materialining xilma-xillik yo'qligi, 14,9% o'g'il bolalar va 25,0% qizlar aniq sababni ko'rsatishda qiynalgan, 60,4% o'g'il bolalar va 59,4% qizlar joriy darslardan qoniqarli deb ko'rsatishdi (3-rasm).



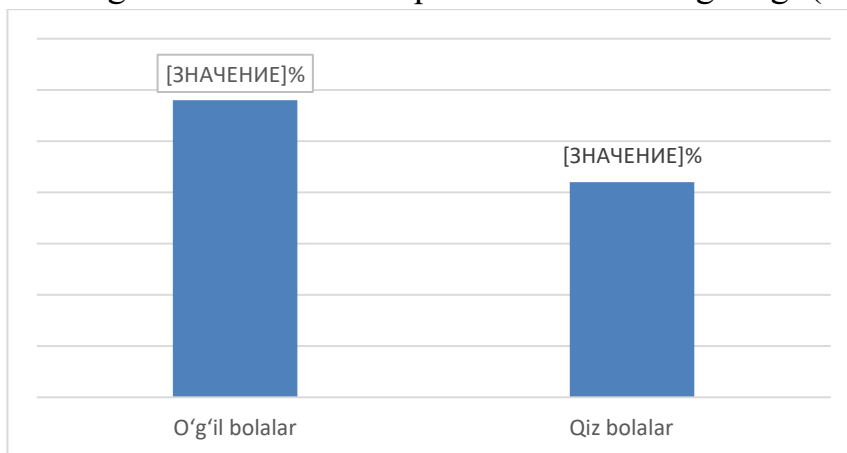
3-rasm. Respondentlarning "Jismoniy tarbiya darslarida sizga nima yoqmaydi?"- degan savolga javoblari natijalari

"Jismoniy tarbiya darslarida qanday sport turlari bilan ko'proq shug'ullanishni hohlar edingiz?"- degan savoliga respondentlarning 13,4% o'g'il bolalar va 9,4% qizlarning voleybol, 16,4% o'g'il bolalar va 6,3% qizlar basketbol, 43,3% o'g'il bolalar va 1,6% qizlar futbol, 17,9% o'g'il bolalar va 60,9% qizlar stol tennisi hamda 9% o'g'il bolalar va 21,9% qizlar badminton sport turlarini jismoniy tarbiya dasturiga ko'proq kiritilishi kerakligini ko'rsatishgan (4-rasm).



4-rasm. Respondentlarning "Jismoniy tarbiya darslarida qanday sport turlari bilan ko'proq shug'ullanishni hohlar edingiz?"- degan savoliga bergan javoblar natijalari

Respondentlarga “Sizning maktabingizda sport musobaqalari qanchalik tez-tez o‘tkaziladi?”- degan so‘rovdan ma’lum bo‘ldiki, o‘rganilayotgan umumiy o‘rta ta’lim maktablarda sport musobaqalari tez-tez (yiliga o‘rtacha 7 marta) o‘tkazilishi, ya’ni 58% o‘g‘il bolalar va 42% qizlar bilan o‘tkazilganligi (5-rasm).



5-rasm. Respondentlarning “Sizning maktabingizda sport musobaqalari qanchalik tez-tez o‘tkaziladi?”- degan savolga bergan javoblari natijalari.

Shuningdek, o‘rganilayotgan umumiy o‘rta ta’lim maktablari o‘g‘il bolalar o‘rtasida qizlarga qaraganda ko‘proq futbol bo‘yicha musobaqalari o‘tkazilishi aniqlandi.

Xulosa. Tadqiqotdaniing asosiy maqsadiga ko‘ra umumiy o‘rta ta’lim maktablaridagi o‘quvchilari bilan onlayn va offlayn tarzda anketa-so‘rovnoma orqali o‘tkazilayotgan sport musobaqalar, sog‘lom turmush tarziga munosabati va qiziqishini aniqlashdan iborat edi. Umumiy o‘rta ta’lim maktablarida o‘quvchilarni darsdan tashqari vaqtlarini mazmunli va unumli o‘tkazishlarida ko‘proq sport musobaqalar uyushtirish orqali sog‘lom turmush tarzini targ‘ib qilishda mustaxkam tizim ishlab chiqish hamda qizlar bilan o‘tkaziladigan musobaqalarga ko‘proq e’tibor qaratish kerak.

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МАКТАБ ЎҚУВЧИЛАРИ МОРФОФУНКЦИОН ХУСУСИЯТЛАРИНИ РАҚАМЛИ ТАҲЛИЛИ

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Аннотация: Мақолада Фаргона шаҳар умумий ўрта таълим мактаб ўқувчиларининг жисмоний тайёргарлигини аниқлашда каноник қийматлар усулининг амалий қўлланилишини текшириш, шунингдек, кўрсаткичлар ўртасидаги каноник қиймат ва каноник корреляцияларни аниқлаш масалалари ёритилган.

Калит сўзлар: таълим, жисмоний ривожланиш, жисмоний тайёргарлик, корреляция коэффициенти, каноник қийматлар, морфометрик параметрлар, ҳаракатчанлик.

Мавзунинг долзарблиги ва зарурияти. Жисмоний тарбия ва оммавий спортни янада ривожлантиришга йўналтирилган кенг кўламли ишларни амалга ошириш бугунги кунимизнинг долзарб муаммоларидан бири бўлиб саналади. Шу мақсадда Ўзбекистон Республикасининг Президенти Шавкат Мирзиёев 2017 йил 3 июндаги “Жисмоний тарбия ва оммавий спортни янада ривожлантириш чора тадбирлари тўғрисида”ги ПҚ-3031-сон қарори, ҳамда 2018 йил 5 мартдаги “Жисмоний тарбия ва спорт соҳасида давлат бошқаруви тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида”ги ПФ-5368-сон Фармонида мамлакатда аҳолини айниқса ёш авлоднинг жисмоний

тарбия ва оммавий спорт билан мунтазам шуғулланиши учун замон талабларига мос шарт шароитлар яратиш, иқтидорли спортчиларни саралаб олиш мақсадли тайёрлаш ишларини тизимли ташкил этиш борасида кенг қўламли ишлар амалга ошириш вазифаси юклатилди [1,2]. Бу эса Ўзбекистонда жисмоний тарбия ва спортни оммалаштириш, аҳоли, айниқса ёшлар ўртасида соғлом турмуш тарзини тарғиб қилиш учун зарур шарт-шароитлар ва инфратузулмани яратиш, мамлакатимизни халқаро майдонларда муносиб иштирок этишини таъминлаш борасида изчил чоратадбирларни ишлаб чиқиш лозимлигини белгилаб беради. Ўқувчиларнинг жисмоний ривожланишда онтогенезнинг индивидуал босқичларида организмнинг ўсиши ва ривожланиши жараёнларини акс эттиради, бунда организмнинг ривожланиш жараёнида ва ташқи муҳит билан ўзаро таъсирида олинган барча белгилар ҳамда хусусиятларнинг йиғиндиси содир бўлади. Жисмоний ривожланиш туғилиш, касалланиш ва ўлим билан бир каторда, инсон саломатлиги даражасининг кўрсаткичларидан биридир. Жисмоний ва жинсий ривожланиш жараёнлари ўзаро боғлиқ бўлиб, ўсиш ва ривожланишнинг умумий қонуниятларини акс эттиради, лекин шу билан бирга сезиларли даражада ижтимоий, иқтисодий, санитария-гигиена ва бошқа шароитларга боғлиқ бўлиб, уларнинг таъсири асосан инсоннинг ёши билан белгиланади.

Мактаб ўқувчиларнинг бўйининг ўсиши ва ривожланиш жараёнида бўлиб, унинг нормал ҳолатини бузилиши соғлиғининг ёмонлиги кўрсаткичи сифатида баҳоланиши керак. Шунинг учун ёш авлоднинг жисмоний ривожланиши ҳақида ўз вақтида маълумот олиш ва таҳлил қилиш соғломлаштириш ишларини олиб бориш долзарб муаммолардан ҳисобланади.

Тадқиқот мақсади. Фарғона шаҳар умумий ўрта таълим мактаб ўқувчиларини жисмоний тайёргарлигини аниқлашда каноник қийматлари усулининг амалий қўлланилишини синаб кўриш, шунингдек, кўрсатилган гуруҳлар ўртасидаги каноник қийматлар ва каноник корреляцияларни аниқлаш.

Тадқиқот усуллари – мавжуд илмий-услубий адабиётлар, меъёрий ҳужжатларни таҳлил қилиш ва умумлаштириш ҳамда жисмоний ривожланганлик аниқлайдиган тестлар ўтказиш.

Тадқиқот натижалари ва унинг муҳокамаси. Умумий ўрта таълим мактабларида жисмоний тарбия дарсларини замонавий талабларга мувофиқ ўзгартиришнинг асосий йўналишларидан бири ўқувчиларнинг саломатлик ҳолати, жисмоний ривожланиши ва жисмоний тайёргарлигининг

мониторингини жорий этишдан иборат. Ўқувчиларда жисмоний машқлар натижалари уларнинг жисмоний тайёргарлик хусусиятларига боғлиқлигини узоқ вақтдан бери тадқиқотчиларнинг эътиборини тортди [3,4].

Мазкур масаланинг амалий жиҳатларини ҳаётга тадбиқ этиш учун мамлакатимизда жисмоний тарбия ва спортни янада ривожлантириш, уни оммавий ҳаракатга айлантириш, аҳоли орасида соғлом турмуш тарзини шакллантириш мақсадида 2021-йил 17-июнда тасдиқланган “Жисмоний тайёргарлик даражаси” спорт тест синовлари мажмуасининг жорий этилиши умумий ўрта таълим, олий ўқув юртлари ва жисмоний тарбия ҳаракатининг бошқа бўғинлари олдига ёшларни ҳар томанлама жисмоний тарбиялаш, юқори унумли меҳнат қилиш ва ватан ҳимоясига тарбиялаш тизимини яратишда алоҳида аҳамиятга эга.

“Жисмоний тайёргарлик даражаси” тест машқларини янада такомиллаштириш шуғулланувчи танасининг умумий ҳажмига боғлиқ, яъни вазни оғирроқ болалар улоқтиришда, бўйи баландроқ болалар эса баландликка сакрашда афзалликларга эга. Нисбий куч қийматлари билан белгиланадиган машқларда эса (масалан, тортишишларда) устунлик тана вазни кичик бўлганларга тўғри келади.

Ўқувчиларнинг жисмоний тайёргарлигини текшириш натижаларида оладиган баҳоларига антропометрик кўрсаткичлар таъсирини бартараф этишнинг иккита усули таклиф қилинган [5].

Биринчи таклиф шундан иборатки, ўқувчилар билан ишлашда тест сифатида фақат жисмоний тайёргарлигини текширишдан фойдаланиш, уларнинг натижаларига, танасининг морфологик тузилишининг хусусиятларига таъсир қилмайди. Бироқ, бу таклифни амалга ошириш икки сабабга кўра жуда қийин. Биринчидан, бу турдаги машқлар нисбатан кичик; иккинчидан, жисмоний тайёргарлик даражасини баҳолаш учун тест машқлари, анъанавий жисмоний машқлар - улоқтириш, баландликка сакраш, яъни ўз танасининг оғирлиги қаршилигини енгиш билан боғлиқ барча ҳаракатларни истисно қилишга олиб келади. Иккинчи усул - бир қатор хорижий мамлакатлар амалиётида кўрсатилган индивидуал жисмоний машқлар натижаларига тананинг умумий ўлчамларининг таъсирини ҳисобга оладиган турли хил кўрсаткичларни жорий этиш. Бу ерда амалий қийинчилик шундаки, бу ёндашув билан ҳар бир жисмоний машқ учун ёки энг яхши ҳолатда уларнинг бир хил гуруҳи учун (масалан, барча улоқтиришлар учун) турли хил услублардан фойдаланиш керак. Бу турли жисмоний машқлар натижаларининг антропометрик хусусиятларга боғлиқлиги бир хил эмаслиги аниқ ҳақиқатдан келиб чиқади.

Агар биз юқорида тавсифланган ёндашувларни математик статистиканинг янада қабий шартларида шакллантиришга ҳаракат қилсак, унда бу таклифларнинг биринчиси натижалари морфо-функционал хусусиятларга мос келмайдиган бундай ҳаракатли вазифаларни уринишларга мос келади, иккинчиси - бир томондан ҳар қандай жисмоний

машқлардаги муваффақият ва иккинчи томондан, бир гуруҳ морфологик хусусиятлар ўртасидаги кўп корреляция коэффициентларини аниқлаш ва регрессия тенгламаларини ҳисоблаш.

Каноник миқдорлар ва каноник корреляциялар таҳлиллар муаммони ҳал қилишда маълум ютуқларга эришиш мумкин. Жисмоний тарбия ва спорт бўйича маҳаллий илмий адабиётларда каноник корреляция натижалари таҳлили қўлланилиши тўлиқ ёритилмаган.

Бизнинг тадқиқотимиз мақсади мактаб ўқувчиларнинг жисмоний тайёргарлигини ўрганишда каноник қийматлар усулининг амалий қўлланилишини синаб кўриш, шунингдек, кўрсатилган гуруҳлар ўртасидаги каноник қийматлар ва каноник корреляцияларни аниқлаш. Тадқиқот ишлари Фарғона шаҳри умумий ўрта таълим мактаб ўқувчилар ўртасида олиб борилган ва кўрсаткич натижалари жадвалда келтирилган.

Синовни ташкил этиш ва усуллари. Жисмоний ривожланганлик тестлари анъанавий ва нисбатан кам учрайдиган ҳаракат вазифаларидан аниқлайдиган тестлар ўтказилди. Ўтказилган ўлчашлар морфофункционал кўрсаткичларнинг асосий йўналишини ўз ичига олади. Ўлчашлар жараёнида умумий қабул қилинган антропометрик амалиётидаги Р. Мартиннинг ўлчаш услублари ёрдамида амалга оширилди. Ўлчаш натижалари 1-жадвалда келтирилган.

Жадвал 1

Тажриба натижалари

№	Ёши	Жинси	Сони	Бўйи, см	Вазни, кг	Тана мушак тўқималарининг %
				$\bar{x} \pm \sigma$	$\bar{x} \pm \sigma$	$\bar{x} \pm \sigma$
1.	8	Ўғил болалар	42	122,7±5,8	24,3±3,2	40,8 + 2,6
		Қиз болалар	48	121,2±6,7	24,2±2,7	38,5 + 3,1
2.	9	Ўғил болалар	52	128,2±7,1	27,9±3,4	41,2 + 1,6
		Қиз болалар	47	127,8±6,4	26,9±3,2	39,7 + 3,4
3.	10	Ўғил болалар	48	132,7±4,9	29,8±2,9	42,3 ± 2,4
		Қиз болалар	44	133,4±5,7	29,5±3,8	40,2 + 3,9
4.	11	Ўғил болалар	47	137,4±5,2	29,5±4,5	43,5 +3,7
		Қиз болалар	52	140,2±6,4	31,5±5,2	41,9 + 3,2
5.	12	Ўғил болалар	43	142,4±7,7	31,5±3,8	45,7 ± 2,5

		Қиз болалар	48	138,7±5,3	29,8±4,6	42,9 + 2,2
6.	13	Ўғил болалар	51	145,4±5,1	32,5±3,8	44,6 + 2,6
		Қиз болалар	54	142,5±5,4	28,2±6,3	42,3 + 2,1
7.	14	Ўғил болалар	49	148,3±5,4	37,5±3,8	46,4 ± 3,8
		Қиз болалар	52	143,3±3,7	32,2±6,4	42,8 + 2,3
8.	15	Ўғил болалар	42	151,6±7,2	42,5±3,6	46,4 ± 4,2
		Қиз болалар	48	148,2±6,1	34,5±6,2	44,1 + 2,5

Олиб борилган тадқиқот ва кузатишлар давомида ўқувчиларнинг бош, бўйин, кўкрак қафаси, қорин ва чаноқ қисмлари, қўл ва оёқлар таққосланиб, ўсиши ёки ўзгариши кузатиб борилади. Узунлик, кенглик ва бурчак белгилари антропометрия асбоблари ёрдамида ўлчанади.

Шунингдек, тери бурмалари учун антропологлар томонидан ишлаб чиқилган схема бўйича калипер Таннер ёрдамида аниқланди. Мушак тўқималарининг мутлақ массаси, ёғ ва тери ости ёғининг мутлақ массасининг оғирлиги Матиевка формуласи билан, мутлақ тана юзаси эса Исаксон формуласи билан аниқланди.

Математик ишлов бериш икки босқичда амалга оширилди. Биринчи босқичда ҳар бир ёш гуруҳи учун бир ўлчовли статистик характеристикалар, корреляция матрицалари ҳисоблаб чиқилди ва омиллар таҳлили ўтказилди (асосий компонентлар усули Варимах мезонига мувофиқ мос ёзувлар ўқларини айлантириш билан ишлатилган). Фактор таҳлили асосида аниқланган омиллар бўйича энг юқори омил оғирликларини берадиган тўққизта морфофункционал кўрсаткич ва саккизта моторли тест танланган. Иккинчи босқичда иккита фарқланган ўзгарувчилар тўплами бўйича каноник таҳлил ўтказилди.

Олинган маълумотларнинг катта миқдорини ҳисобга олган ҳолда, ушбу мақолада биз каноник таҳлил натижалари билан чекланамиз ва фақат 14 ёшли ўғил болалар гуруҳида олинган энг юқори каноник корреляция коэффицентлари ва уларга мос келадиган каноник қийматларни тақдим этамиз (жадвал. 2)

Жадвал 2

Морфометрик кўрсаткичларнинг каноник қийматлари ва ҳаракат тест натижалари

(n=90 ўқувчининг каноник коэффицентлари = 0,852)

№	Катталиклар	$\bar{x} \pm \sigma$	Каноник катталик		
			I	II	III
Морфофункционал кўрсаткичлар					
1.	Тана узунлиги, см	149,6±8,4	1,594	1,746	2,550

2.	Елка узунлиги, см	26,8±2,3	-1,310	0,021	0,125
3.	Оёқ узунлиги, см	76,8±5,4	-0,998	2,146	1,817
4.	Оёқ кафти узунлиги, см	31,9±3,4	2,040	-1,459	
5.	Кўкрак кафаси диаметри, см	30,5± 1,7	0,013	0,991	0,016
6.	Елка айланаси, см	22,1±2,9	-2,036	1,143	0,014
7.	Тери билан тери ости ёғ қатламининг ўртача қалинлиги, см	3,4±0,6	1,266	0,017	0,879
8.	Тери ости ёғ улуши	6,08±1,6	0,196	-0,673	-0,024
9.	Мушак тўқималарининг фоизи	45,6±2,45	0,742	-0,638	0,620
Жисмоний тайёргарлик тестлари					
1.	Югуриш 30 м, с	5,8 ± 0,5	0,581	-0,848	-0,272
2.	Мокисимон югуриш 3 x 1 0 м, с	9,7±0,8	0,428	-0,676	0,028
3.	Оёқларни бир-биридан ажратиб, орқага қараб турган ҳолатдан тўпини улоқтириш, м	485,2 ± 135,9	0,960	-0,164	
4.	Югуриш 500 м, с	133,6±22,0	-0,302		-0,017
5.	Полга таянган ҳолда қўлларни букиб ёзиш (колич. раз)	11,8±5,2	-0,139	-0,121	1,321
6.	Қўлларни олдинга чўзиб ўтириб туриш, см	5,8±4,3	0,513	0,153	-0,698
7.	Мувозанат тести, с	12,2±4,8	0,325		-0,265

Ўлчаш натижасида олинган кўрсаткичларнинг қийматларининг каноник корреляция коэффициенти 0,852 га тенг. Бу аниқ ҳаракат тестларидаги морфологик ва функционал кўрсаткичларга жуда яқин боғлиқлигини кўрсатади. Шунинг таъкидлаш кераки, каноник корреляция усули автоматик равишда бир хил тўпламга тегишли хусусиятлар ўртасида корреляция мавжудлигидан келиб чиқадиган “нотўғри” корреляциялардан қочади. Масалан, баландликка сакраш самарадорлиги ва торсо узунлиги ўртасидаги боғлиқлик “нотўғри” бўлиши мумкин ва фақат тана узунлиги оёқ узунлиги билан боғлиқлиги сабабли қайд этилиши мумкин ва иккинчиси сакраш баландлигига бевосита таъсир қилади.

Каноник корреляция коэффициентининг бундай катта қиймати, морфологик ва функционал кўрсаткичлар, масалан, ёғ ва мушак тўқималарининг улуши боланинг ҳаракат функцияси ҳолатини бевосита акс эттириши билан белгиланади. Боланинг морфофункционал ҳолатини ва унинг жисмоний тайёргарлигини энг аниқ баҳолайдиган индексларни ҳисоблаш учун 2 та каноник қийматдан фойдаланиш мумкин. Хусусан, агар субъектларда қайд этилган морфофункционал кўрсаткичларнинг қиймати мос келадиган каноник қийматларга кўпайтирилса ва олинган қийматлар

умумлаштирилса якуний йиғинди каноник индекс келиб чиқади, унинг киймати ҳаракат тестлари натижалари билан энг юқори даражада боғлиқ. Бундай каноник индекс ҳам тасодифий ўзгармайдиган ва статистик тақсимотга эга бўлганлиги сабабли, алоҳида ўқувчиларнинг каноник индекслари бир-биридан фарқ қилади. Ушбу ўзгарувчанлик, бир томондан, ўқувчининг морфофункционал ҳолатини баҳолаш учун, бошқа томондан, жисмоний тайёргарликни баҳолашда морфофункционал ҳолатдаги фарқларнинг таъсирини бартараф этиш учун ишлатилиши мумкин. Буни, масалан, турли морфофункционал ҳолатга эга бўлган ўқувчилар учун турли меъёрларни киритиш орқали амалга ошириш мумкин. Бундай тартиблар катта масштабда олиб борилган тадқиқотларда аниқланади.

Хулоса.

1. Ўқувчиларнинг морфологик, функционал кўрсаткичлари ва ҳаракат қобилиятлари ўртасидаги боғлиқликни баҳолаш учун каноник таҳлил усулидан фойдаланиш таклиф этилади.

2. Каноник корреляция коэффициенти морфологик ва функционал кўрсаткичлар, ёғ ва мушак тўқималарининг улуши боланинг ҳаракат функцияси ҳолатини бевосита акс эттириши мумкин.

3. Спорт билан шуғулланмайдиган ўқувчиларда морфофункционал ҳолатини баҳолаш учун, бошқа томондан, жисмоний тайёргарликни баҳолашда морфофункционал ҳолатдаги фарқларнинг таъсирини бартараф этиш учун ишлатилиши натижаларига кўра кўтарилган муаммони ҳал қилишда маълум ютуқларга эришиш мумкин.

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BO'LAJAK O'QITUVCHILARNING KASBIY KOMPETENTLIGINI RAQAMLI TA'LIM MUHITIDA RIVOJLANTIRISH

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Annotatsiya: *Ushbu maqolada raqamli texnologiyalar muhitida bo'lajak o'qituvchilarning kasbiy kompetensiyalarini oshirish usullari va mazmuni hamda samarali vositalari muhokama qilinadi. Raqamlashtirish, kompyuterlashtirishning joriy etilishi hayot va jamiyatning barcha sohalariga ta'sir ko'rsatmoqda. Oliy ta'limda raqamli texnologiyalarning ahamiyati, ulardan oqilona va samarali foydalanishga qo'yiladigan talablar ko'rsatilgan.*

Kalit so'zlar: *raqamli texnologiya, kasbiy kompetensiya, amaliy ahamiyat, pedagogik mahorat, ta'lim, tarbiya, rivojlanish, axborot-kommunikatsiya texnologiyalari, virtual dunyo, rivojlanish, globallashev, motivatsiya, integratsiya, natija, tajriba.*

“Raqamli savodxonlik”, “raqamli ta'lim”, “raqamli ta'lim muhiti”, “raqamli didaktika” tushunchalariga hozirda butun dunyoda katta e'tibor qaratilmoqda. Hozirda raqamlashtirish inson faoliyatining barcha jabhalarini jadallik bilan egallab bormoqda. Ayni vaqtda jamiyat oldida raqamli kasbiy kompetensiyalarga ega bo'lgan mutaxassislarni tarbiyalash masalasi turibdi. Mamlakatimiz prezidenti Sh. M.Mirziyoyev raqamli iqtisodiyot, raqamli ta'lim, raqamli aqlli shaharlarni barpo etish bo'yicha minglab dasturchilarni tayyorlash bo'yicha qator qaror va farmoyishlar chiqardi. Raqamli iqtisodiyot raqamli ta'lim va raqamli turizm sohalarida ko'plab mutaxassislarni yetishtirish dasturini o'z ichiga oladi. Butun aholiga raqamli ta'lim berish, ularda raqamli aloqa, telefon va kompyuter ko'nikmalarini shakllantirish bo'yicha davlat xizmatlarini yo'lga qo'yish ham shular jumlasidandir.

Ensiklopediyalarda axborotlashtirish deganda axborot texnologiyalaridan inson va jamiyat hayotining barcha jabhalarida foydalanish tushuniladi. Ta'lim sohasidagi axborotlashtirish ma'lumotlarni yig'ish, qayta ishlash, saqlash va texnik vositalardan foydalangan holda talabalar va o'quvchilarning fikrlash va intellektual qobiliyatlarini yaxshilashga qaratilgan.

Zamonaviy sharoitda global xarakterdagi ta'limning uzluksiz jarayoni axborot texnologiyalaridan foydalanishdagi o'sishining aniq tendentsiyasini ko'rsatadi. Informatika va axborot texnologiyalari muammolariga bag'ishlangan psixologik va pedagogik adabiyotlarning tahlili shuni ko'rsatdiki, ta'limni rivojlantirishdagi asosiy sa'y-harakatlar tegishli moddiy-texnik bazani yaratish, axborot texnologiyalarini rivojlantirish, ularni o'quv jarayoniga joriy etishga qaratilgan. Biroq, jamiyatni axborotlashtirish pedagogik faoliyat mazmunini tubdan o'zgartiradi. Axborot va telekommunikatsiya texnologiyalari ma'lumotlar bazalari va bilimlaridan kompyuter texnikasidan foydalanish qobiliyati, ixtisosligidan qat'i nazar, zamonaviy o'qituvchining asosiy fazilatlariga aylanadi. Axborot texnologiyalari ta'limni modernizatsiya qilishning asosiy yo'nalishlari kontekstida kasbiy faoliyat vazifalarini hal qila oladigan o'qituvchining axborot madaniyatini shakllantiradi.

Inson faoliyatining barcha ijtimoiy ahamiyatga ega bo'lgan turlarida ishonchli bilimlardan to'liq va o'z vaqtida foydalanishni ta'minlashga qaratilgan kompleks chora-tadbirlarni amalga oshirishning innovatsion texnologiyalaridan foydalanish oliy ta'limni rivojlantirishning muhim omilidir. Innovatsion texnologiyalardan foydalanish jarayoni elektronika, kompyuterlar, aloqa vositalarining ko'payishi, jadal rivojlanishi bilan bir vaqtda vujudga kelgan va turli yo'nalishlarda, jumladan, ta'lim sohasida insonning o'rnini o'zgartirmoqda.

Bo'lajak o'qituvchilar mehnat bozorida raqobatbardosh va talabgir bo'lishi kerak. Shu sababli, ta'limning maqsadlari, birinchi navbatda, bilim va ko'nikmalarga qo'yiladigan talablar va kompaniyaning yangi avlodni rivojlantirish va tarbiyalashga qo'yadigan talablari asosida belgilanadi. Talabalar hayotning xilma-xil sharoitlariga moslashish uchun mustaqil ravishda qaror qabul qilishlari, faol harakat qilishlari kerak.

Innovatsion texnologiyalardan foydalanishning ahamiyati o'qitish motivatsiyasi bilan ham bog'liq bo'lgan jihatdir. Motivatsiya ta'lim samaradorligining eng muhim shartidir. Pedagoglar ishida texnologiyani qo'llashning asosiy yo'nalishlari, birinchi navbatda, tayyor mahsulotlardan foydalanish mumkinligi: kompyuter o'yinlari va simulyatorlar, kompyuter testlari, ta'limiy o'yinlar, raqamli kitoblar, darsliklar, ensiklopediyalar, psixologik resurslar.

Agar pedagog tayyor materiallarni topa olmasa, ularni mustaqil ravishda ishlab chiqishi mumkin va bunday resurslarning eng oddiyi bu taqdimot bo'lib, uning asosida o'yinlar qilish mumkin, ulardan mashq qilish, mustahkamlash uchun foydalanish mumkin.

Jamiyat rivojlanishining zamonaviy davri axborotdan ijtimoiy mahsulot sifatida foydalanish, inson faoliyatining asosiy turlarini intellektuallashtirish va jamiyatni demokratlashtirishni tezlashtirishni ta'minlaydigan axborotlashtirish jarayoni bilan tavsiflanadi.

Ta'lim tizimi o'quvchilarga nafaqat jamiyatning yangi axborot muhiti, uning xususiyatlaridan foydalanish bo'yicha amaliy ko'nikmalarni berish, balki axborotning asosiy rolini tushunishga asoslanishi kerak bo'lgan yangi dunyoqarashini ham shakllantirishi kerak. O'qitishdagi zamonaviy texnologiyalar noan'anaviy axborot manbalariga ochiq kirish imkonini beradi, mustaqil ish samaradorligini oshiradi, turli kasbiy ko'nikmalarni yaratish, egallash va mustahkamlash uchun mutlaqo yangi imkoniyatlar beradi, o'qitishning tubdan yangi shakl va usullarini amalga oshirishga sharoit yaratadi.

Ta'limni axborotlashtirish - bu ta'lim sohasidagi yangi bilimlarni tizimlashtirish va rivojlantirishni ta'minlaydigan ma'lumotlarni to'plash, saqlash, qayta ishlash va tarqatish uchun texnologiyalar va uskunalarni qo'llashga qaratilgan ilmiy-amaliy inson faoliyati sohasi hisoblanadi.

Innovatsion texnologiya o'qitish jarayonini individuallashtirish va intensivlashtirish uchun sharoit yaratadi, bir vaqtning o'zida o'qiyotgan barcha talabalarning mashqlar murakkabligi bo'yicha tenglikni amalga oshirishni ta'minlaydi. Raqobatbardosh pedagog kadrlar tayyorlashda innovatsion texnologiyalardan foydalanish asosiy o'rinda hisoblanadi. Yuqorida aytib o'tilganlardan kelib chiqib, raqobatbardosh o'qituvchilarni tayyorlash talabidan kelib chiqadigan ustuvor vazifalarni shakllantirish mumkin.

Birinchiidan, bugungi kunda kadrlar tayyorlash texnologiyalarini takomillashtirish va o'quv jarayoniga axborot vositalarini keng joriy etish hisobiga o'qituvchilarning malaka darajasini oshirish.

Ikkinchiidan, bo'lajak o'qituvchilarni bilim, ko'nikma va malakalar majmuasini o'zlashtirish, shaxsiy fazilatlarni rivojlantirish, kasbiy faoliyat vazifalarini muvaffaqiyatli amalga oshirishni va axborotning yuqori darajadagi rivojlanishi uchun hal qiluvchi ahamiyatga ega bo'lgan axborotlashgan sharoitni ta'minlash.

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DIDACTIC HERITAGE OF A. AVLONI AS A BASIS FOR MODERN EDUCATION

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Abstract: This article is devoted to the study of the didactic heritage of Abdullah Avloni as an important source of patriotism formation in students. In the context of the early 20th century, A. Avloni focused on the importance of national identity and cultural values. His ideas remain relevant in the modern educational process, where patriotism education is one of the key tasks. We will analyze the main approaches and methods of A. Avloni, as well as their application in universities to form patriotic feelings in young people, which helps to strengthen civic position and social responsibility.

Keywords: Patriotism, didactics, education, national identity

In the context of globalization and rapid changes in the socio-cultural environment, the formation of patriotism in young people is becoming especially relevant. The didactic heritage of Abdullah Avloni, one of the prominent educators of the early 20th century, offers a rich toolkit for solving this problem. A. Avloni emphasized the importance of cultivating a sense of national pride and love for the Motherland through education. His ideas remain relevant in the modern context, when the younger generation faces challenges that require developing confidence in their identity and responsibility for the future of the country. In this article, we will consider the main ideas of A. Avloni on patriotism and his didactic approaches, as well as their possible application in universities to develop patriotic feelings in students. A. Avloni emphasized that patriotism is not only an emotional feeling, but also a conscious choice, imbued with knowledge of the culture, history and values of one's country. In the context of political instability of the early 20th century, his ideas on the importance of national identity and the unity of the people became especially relevant. A. Avloni emphasized that the education of patriotism should begin at an early age and continue in educational institutions. He saw education as the key to the formation of conscious citizens capable of active participation in the life of society. Thus, his approaches help to understand how a sense of patriotism can be developed in students, based on deep cultural and historical roots. A. Avloni's didactic heritage includes a number of methods aimed at developing critical thinking, independence and responsibility in students. He proposed using active forms of learning, such as discussions, debates and project activities, which allows students to better understand the values of patriotism. In the modern educational process, these approaches can be successfully integrated into curricula. For example, the use of group projects related to the history and culture of their country contributes not only to the development of patriotic feelings, but also to the skills of teamwork and critical analysis. Thus, A. Avloni's ideas represent a valuable heritage that can significantly enrich modern education. A. Avloni developed a number of methods aimed at forming patriotic feelings through the educational process. One of these methods is the use of historical and cultural examples in teaching. Universities can include in their programs courses devoted to the study of the history of their native land, cultural traditions and achievements of the country. It is also important to use problem tasks and case methods that encourage students to analyze and discuss current issues of patriotism. In addition, practical classes related to volunteering and social activity help students not only better understand the meaning of patriotism, but also actively participate in the life of society, becoming its full-fledged participants.

The didactic heritage of Abdullah Avloni remains a significant tool for the formation of patriotism in students. His ideas on the importance of cultural identity and active participation in society can be effectively used in modern educational practices. It is recommended to integrate A. Avloni's methods into the curricula of universities, focusing on active forms of learning and project activities. This will not only increase the level of patriotic education, but also help students develop critical thinking and social responsibility.

Thus, the didactic heritage of A. Avloni is an important resource for modern patriotic education. His ideas and methods can be successfully adapted to modern educational realities, contributing to the formation of conscious and active citizens.

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CLASSIFICATION OF THEMATIC GROUPS OF IT TERMS

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Annotation: *The article is devoted to the study of the thematic groups of IT terms in English. The peculiarities of the word-formation process and the functioning of English computer terms are analysed. Classification of thematic groups of IT terms shows different thematic groups that telecommunication technology, radio, television, mobile communication and the way of its forming are studied in the article.*

Keywords: *Information technology, telecommunication technology, radio, television, mobile communication.*

Introduction. The concept of IT terminology is a special scientific and technical concept for the science of IT, which names the total tools, devices, methods and processes used to find, store, search, process and distribute information in the fields of telecommunications, radio, television, information security, mobile communication that they cover a set of lexical units used in the implementation of expressive professional communication.

Information Technology – the technology involved in the recording, storage, and dissemination of information, using computers, telecommunications, etc.

The concept of informatization includes the organizational socio- economic processes of creating conditions for fulfilling the informational needs and rights of individuals, state authorities and management bodies, organizations based on the formation of information resources and their systems , as well as their effective use[1].

Literature Review methods.

According to S.Pavel and D. Niolet, the TERMIUM (Terminology and Standardization Translation bureau.Canada) organization’s manual on the translation of terms provides a system of classification into thematic groups, and the terminology is divided into 24 thematic groups. On average, each major thematic group is divided into 10 to 12 sub – thematic groups[2].

Telecommunication technology is also included in the concept of IT, because this technology ensures the transmission of information using various radio, television, telephone, and space communication channels, which is why synonyms such as “new”, “computerized” or “modern” are born. The word “new” indicates that this technology is innovative rather than evolutionary. Telecommunications technology refers to distance communications, such as radio, telephone, television, satellite, microwave, data communication, and computer networking. Telecommunications technology means any mechanisms of real-time communication in which some of [the participants](#) are not in the [physical presence](#) of the others. Such communication mechanisms shall include, but not be limited to, teleconferencing, [video conferencing](#), [the Internet](#), and any [other forms](#) of interactive audio or audio-video systems. Meetings using Telecommunications Technology shall be acceptable only when [all members](#) have all [appropriate documentation](#) and it is not feasible for [the committee](#) to meet [in person](#) within the time necessary to make a decision. In IT and telecommunications, translation services are more commonly known as software localization services and often refer to translation of software and apps. That could mean anything from error messages, screen displays, online guides, manuals and technical guidelines to the Service Level Agreements (SLAs) underpinning products.

Results and Discussion.

The immense variety of IT and telecommunications technology and its ubiquity in so many different fields means it is vital that translations in the IT and telecommunications sector be entrusted to expert linguists who specialize in ICT.

A wide range of texts and documents fall under the category of IT and telecommunications:

Technical manuals and guides

Software, websites, digital commerce and digital banking, including user interfaces, forms, error messages, warnings, pop-ups and code

ERP systems for corporate-level resource planning, such as networking and office automation

Video games

Telecommunications and network services

Audio/video systems

Multimedia systems

Press releases, technical specifications, brochures, white papers

Our translation agency makes these professionals available to clients in IT and telecommunications, backed up by the latest technology, online terminology banks compiled over decades, and continued professional development and refresher courses. IT and telecommunications translation services also benefit from our in-house graphics and desktop publishing (DTP) department, which allows us to handle all multilingual formatting and layout requirements, drawing on high-level expertise and ensuring excellent quality while minimizing time to market and project costs.

According to E. Begmatov, thematic groups have two concepts: one of the linguistic methods of classifying words, and this method consists of lexical groups of the linguistic material in which the classification is made. First of all, the division of words into thematic groups, the number, wealth or poverty of the groups comes from the language material. Most thematic groups of words (such as names for food, clothing, household goods, or kinship terms, etc) are found in, or are common to, many languages. For example, the thematic groups meaning the names of plants and trees are absent in the language of the Nenets living in the far north or are extremely narrow compared to the Uzbek language. [4]

As a result of the analysis, IT terms are divided into five main thematic groups:

Telecommunication: “the process of remote data transmission based on the information and communication technologies”.

Aberration – 1. Abberatsiya, buzilish. 2. Og’ish

Black saturation – qora rang sohasidagi siqish

Cross fade – montajli o'tish

Radio: it is carried out with the help of radio waves communication

Beat noise – geteradin xushtagi

Callsign – chaqiruv (signal)

Radiophotography – faksimil aloqa

Receiver – radio qabul qiluvchi qurilma and etc.

Television : “a network system whose main function is the transmission of moving images. At the first, television programs developed as a mass media intended for a wide audience of subscribers”.

Scalloping – 1. Tasvir chetlarining taroqsimon buzilishi; 2. Rastr chetlarining notekisligi

Sharpening – tasvir aniqligini (ravshanlashtirish) oshirish

Televise – dastlabki videosignalni qabul qilgich

Transcoder – transkoder, kod o'zgartirgich

Mobile communication: “Mobile communication consists of an underground base station and a group of subscriber systems. In such a star network, the base station provides switching processes for these systems by connecting interoperable pairs of systems or implementing wide distribution. Mobile translation refers to the process of translating text, speech, or images from one language to another using a mobile device, such as a smartphone or tablet. Mobile translation has become increasingly popular for travelers, language learners, and individuals communicating with others who speak different languages. It provides a convenient and efficient way to bridge language barriers and facilitate communication in diverse settings.

Interpremises networking – abonentlararo tarmoq yaratish

Nodeless network – tugunsiz (aloqa) tarmoq

Mobile communication is an underground base station and a group of subscribers consists of systems. In such a star network, the base station connects or distributes the interworking pairs of systems. In this case, the moving object moves from the work zone of one station to the zone of another station. This transition is called roaming.

Information security: “Desirable result of information protection. The purpose of information protection is to prevent the information owner, owner user from being harmed as a result of information leakage and unauthorized and intentional actions against information”. Information security refers to the protection of data and information as company assets. For listed companies, this especially applies to [insider information](#). These are facts that are unknown to the

public, but could affect the value of shares and other securities. Unauthorised sharing of insider information, let alone insider trading, is a criminal offense.

Information security includes an electronic digital signature (ERI) and is expressed by the following terms: public infrastructure, public key infrastructure, Electronic digital signature – digital signature. ERI authenticity verification center, such as electronic document attributes, means of electronic documents circulation; IT terms are divided into small thematic groups according to:

Information and data, personal information, personal data, nonrequested information, open information, limited access information, data message, file.

Computing tools: cluster – klaster, portable computer – portative kompyuter, electronic means – elektron vositalar, software – dasturiy vosita, staff technical – shtatdagi texnika vositasi, gateway – shlyuz, dual-homed gateway – ikki yo’l shlyuz.

Software and protocols: algorithm – algoritm, demon – demon, software – dasturiy ta’minot, software product – dasturiy mahsulot, software product – dasturiy mahsulot, protocol – protocol, secure sockets layer, SSL – xavfsiz ulanishlar protokoli, secure electronic transaction, SET – himoyalangan tranzaksiya protokoli.

Conclusion. The translation process involves more than just substituting words; it requires the preservation of cultural and linguistic nuances. It's essential to strike a balance between uniformity and cultural identity. Accurate translation of IT terms is crucial for educational institutions, allowing students to receive education in their native languages. This, in turn, can foster a deeper understanding of the subject matter.

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RAQAMLI IQTISODIYOT VA DAVLAT BOSHQARUVI

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Annotatsiya: Bugungi kunda davlat boshqaruvida raqamli iqtisodiyotning tobora rivojlanib borayotganligini ko'rishimiz mumkin. Ushbu maqolamiz ham davlat boshqaruvini elektronlashtirish raqamli texnologiyalarni takomillashtirish hamda bular natijasida insonlarning yashash sharoitlarini yengillashirishga qaratilgan.

Kalit so'zlar: Davlat, raqamli texnologiyalar, axborot xavfsizligi, kiberxavfsizlik, fuqarolar, IT, elektron hukumat, suniy intellekt, raqamli iqtisodiyot.

Kirish. Zamonaviy dunyoda raqamli iqtisodiyot hayotning barcha jabhalariga mustahkam kirib bordi va davlat boshqaruvi ham bundan mustasno emas. Raqamli texnologiyalarning davlat organlari faoliyatiga va ularning jamiyat bilan o'zaro munosabatlariga ta'siri tobora kuchayib bormoqda. Raqamli texnologiyalar ko'plab muntazam vazifalarni avtomatlashtirishga imkon beradi, ularni bajarish vaqtini va xarajatlarini kamaytiradi. Bu muhimroq va murakkab vazifalarni hal qilish uchun resurslarni bo'shatadi. Bu esa davlatning boshqaruv tizimini yanada samarali ishlashiga yordam beradi.

Fuqarolar davlat xizmatlarini onlayn tarzda olishlari, ularni yashash sharoitlarini yanada qulay qilishlari mumkin. Bu orqali esa davlat boshqaruvida sifatli xizmat ko'rsatishni yo'lga qo'yishga yordam beradi. Oshkoralikni oshirish orqali raqamli platformalar davlat organlari faoliyati to'g'risidagi ma'lumotlarni jamoatchilikka e'lon qilish imkonini beradi, bu esa shaffoflik va mas'uliyatni oshirishga xizmat qiladi. Davlat raqamli texnologiyalardan ta'lim, sog'liqni saqlash, transport va boshqalar kabi turli sohalarda yangi echimlarni ishlab chiqish va amalga oshirish uchun foydalanishi mumkin. Davlat boshqaruvida fuqarolik ishtirokini kuchaytirish uchun fuqarolar o'z hayotiga ta'sir qiladigan qarorlarni qabul qilishda ishtirok etish uchun raqamli vositalardan foydalanishlari mumkin.

Yuqori tezlikdagi Internetga kirish, aloqa tarmoqlarini rivojlantirish, ma'lumotlar markazlarini yaratish orqali yuqori infratuzilmaga ega bo'lamiz.

Adabiyotlar tahlili: Ko'pgina tadqiqotchilar o'z ishlarini ushbu masalaning turli tomonlarini o'rganishga bag'ishlaydilar. Adabiyotlarni tahlil qilish tadqiqotning bir nechta asosiy yo'nalishlarini aniqlashga imkon beradi. Bu yo'nalishlar:

1. Raqamli iqtisodiyot va davlat boshqaruvining nazariy asoslari: Raqamli iqtisodiyot va raqamli davlat boshqaruvi tushunchalarining ta'rifi. Raqamli iqtisodiyotni rivojlantirish omillari va qonuniyatlarini o'rganish. Raqamli iqtisodiyotda davlatning rolini tahlil qilish. Raqamli davlat boshqaruvi konsepsiyalari va modellarini ishlab chiqish.

2. Raqamli iqtisodiyotning davlat boshqaruviga ta'siri: Davlat organlarining funktsiya va vakolatlarini o'zgartirish. Davlat tomonidan tartibga solish usullarini o'zgartirish. Davlat va fuqarolar va biznes o'rtasidagi o'zaro munosabatlarning yangi shakllari. Raqamli texnologiyalarning davlat xizmatlari sifati va ulardan foydalanish imkoniyatiga ta'siri.

3. Elektron hukumatni rivojlantirish: Elektron davlat xizmatlarini yaratish va ulardan foydalanish. Elektron tizimlarning axborot xavfsizligini ta'minlash. Fuqarolarning elektron davlat xizmatlariga ishonch darajasini oshirish. Elektron hukumat sohasida xalqaro hamkorlik.

4. Davlat boshqaruvining raqamli transformatsiyasi: Raqamli transformatsiya strategiyalarini ishlab chiqish va amalga oshirish. Davlat organlarida boshqaruvni o'zgartirish. Davlat xizmatchilarining raqamli kompetensiyalarini rivojlantirish. Raqamli transformatsiya jarayonida fuqarolar ishtirokini ta'minlash.

5. Davlat boshqaruvida raqamli texnologiyalar: Davlat boshqaruvida katta ma'lumotlardan foydalanish. Sun'iy intellektning davlat boshqaruvida qo'llanilishi. Davlat boshqaruvida blokcheyn texnologiyalarini rivojlantirish. Davlat boshqaruvida narsalar internetidan foydalanish.

6. Raqamli iqtisodiyot va davlat boshqaruvi muammolari va muammolari: Raqamli muhitda kibernetika xavfsizlikni ta'minlash. Raqamli tafovutni kamaytirish. Shaxsiy ma'lumotlarni himoya qilish. Raqamli texnologiyalardan axloqiy foydalanishni ta'minlash.

7. Turli mamlakatlarning raqamli iqtisodiyot va davlat boshqaruvi sohasidagi tajribasini qiyosiy tahlil qilish: Raqamli davlat boshqaruvi sohasidagi yetakchi mamlakatlarning ilg'or tajribasini o'rganish. Raqamli transformatsiya strategiyalarini amalga oshirishda mamlakatlar duch keladigan muammolar va qiyinchiliklar tahlili. Raqamli iqtisodiyotda davlat boshqaruvi tizimini

takomillashtirish bo'yicha tavsiyalar ishlab chiqish. Ushbu mavzu bo'yicha adabiyotlarni tahlil qilish raqamli iqtisodiyot davlat boshqaruvining barcha sohalariga chuqur ta'sir ko'rsatadi, degan xulosaga kelish imkonini beradi. Raqamli iqtisodiyotda muvaffaqiyatli faoliyat yuritish uchun davlatlar davlat organlari faoliyati samaradorligi va sifatini oshirish, shuningdek, fuqarolar hayotini yaxshilashga qaratilgan kompleks raqamli transformatsiya strategiyalarini ishlab chiqishlari va amalga oshirishlari zarur.

Tadqiqot metodologiyasi

Tadqiqot shuni ko'rsatdiki, raqamli iqtisodiyot va davlat boshqaruvining turli jihatlariga bag'ishlangan ko'plab ilmiy ishlar mavjud. Biroq, bu masalani har tomonlama tahlil qilishga bag'ishlangan tadqiqotlar etarli emas. Shuningdek, raqamli iqtisodiyotda davlat boshqaruvi tizimini takomillashtirish bo'yicha tavsiyalar ishlab chiqish uchun raqamli davlat boshqaruvi sohasidagi yetakchi mamlakatlar tajribasini o'rganish dolzarb ahamiyatga ega.

Muhokama va natijalar

Yuqoridagi keltirilgan fikrlar va tahlil qilingan adabiyotlardan olingan hulosalarga ko'ra shuni aytishimiz mumkinki, elektron xizmatlarni rivojlantirish, davlat xizmatlarini elektron shaklda ko'rsatish, davlat xizmatlarining yagona portalini yaratish raqamli iqtisodiyotni davlat boshqaruvidagi ro'lini tobora kuchaytirishga hizmat qiladi. Kiberxavfsizlikni ta'minlash bu eng asosiy bo'g'in bo'lib davlat organlari va fuqarolarning ma'lumotlarini kiber tahdidlardan himoya qilish ustuvor vazifa hisoblanadi. Raqamli texnologiyalarda xavfsizlik birinchi o'rinda turadigan omil bo'lishi kerak. Raqamli texnologiyalarni rivojlantirishni qo'llab-quvvatlash, IT sohasidagi innovatsiyalarni qo'llab-quvvatlash, raqamli kompaniyalarning rivojlanishini rag'batlantirish ham yangi bir taklif bo'lib qolmoqda. Raqamli texnologiyalarni yanada keng joriy qilish uchun avvalambod aholining raqamli savodxonligini oshirish muhim, fuqarolarni raqamli texnologiyalar bilan ishlash ko'nikmalariga o'rgatish samarali yechim bo'la oladi. Albatta bu katta investitsiyalar zarurati kabi muammolarni keltirib chiqaradi. Chunki raqamli texnologiyalarni joriy etish katta moliyaviy xarajatlarni talab qiladi. Yuqoridagilardan tashqari, davlat boshqaruvining raqamli transformatsiyasini amalga oshirishda turlicha yondashuvlar mavjudligini ta'kidlamochiman. Estoniya va Singapur kabi ba'zi davlatlar bu borada sezilarli yutuqlarga erishgan. Boshqa mamlakatlar endigina raqamli transformatsiya strategiyalarini ishlab chiqishni boshlamoqda. Bu mamlakatlar tajribasi raqamli iqtisodiyotini rivojlantirmoqchi bo'lgan boshqa davlatlar uchun foydali bo'lishi mumkin.

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A.AVLONIY DIDAKTIK MEROSI ASOSIDA VATANPARVARLIK TUYG‘USINI SHAKLANTIRISHDA INNOVATSION YONDASHUVLAR

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***Annotatsiya:** Maqolada Abdulla Avloniy g‘oyalari asosida vatanparvarlik tarbiyasiga innovatsion yondashuvlar ko‘rib chiqiladi. Zamonaviy muammolar, jumladan, globallashuv va madaniy o‘ziga xosliklarning o‘zgarishi sharoitida vatanparvarlik tarbiyaning muhim elementiga aylanib bormoqda. Avloniy ta’lim-tarbiya jarayonida milliy g‘urur va mas’uliyat tuyg‘ularini shakllantirish muhimligini ta’kidlagan. Biz uning didaktik merosidan olingan zamonaviy uslublarni o‘rganamiz va vatanparvarlik elementlarini universitet o‘quv dasturlariga kiritishning muvaffaqiyatli misollarini tahlil qilamiz. Maqolaning maqsadi o‘quvchilarda vatanparvarlik tuyg‘ularini rivojlantirish, jamiyat hayotida ishtirok etishga tayyor faol fuqarolarni shakllantirishda Avloniy g‘oyalaridan samarali foydalanish yo‘llarini aniqlashdan iborat.*

***Kalit so‘zlar:** Vatanparvarlik, innovatsion yondashuvlar, ta’lim, didaktika, tarbiya*

Kirish. Zamonaviy ta’lim jarayonida vatanparvarlik tarbiyasi, ayniqsa, globallashuv va madaniy o‘zgarishlar sharoitida tobora dolzarb bo‘lib bormoqda. Natijada yoshlar ma’naviy o‘ziga xoslik va tarixiy-madaniy merosni yo‘qotish bilan bog‘liq muammolarga duch kelishmoqda. 20-asr boshlarida milliy pedagogikaning asoschilaridan biri bo‘lgan Abdulla Avloniyning g‘oyalari alohida ahamiyat kasb etadi. Uning ishlarida vatanparvarlik tuyg‘ularini, fuqarolik mas’uliyatini shakllantirishda ta’lim-tarbiyaning o‘rni alohida ahamiyat kasb etadi. Shu nuqtai nazardan uning didaktik merosi asosida zamonaviy voqelikka moslashtirilgan pedagogik texnologiyalarni universitetlarda talabalar o‘rtasida vatanparvarlik tuyg‘usini samarali rivojlantirishda ishlab chiqish va qo‘llash bu borada mavjud muammolarni samarali bartaraf etishga yordam beradi. Ushbu maqolada A.Avloniy g‘oyalari asosida vatanparvarlik tarbiyasiga innovatsion yondashuvlar, ularni universitet ta’limida qo‘llash masalalarini ko‘rib chiqiladi.

Vatanparvarlik tuyg‘usi zamonaviy ma’nosi va A.Avloniy qarashlari

Zamonaviy dunyoda vatanparvarlik fuqaroning o‘ziga xosligi va ijtimoiy hamjihatlikning muhim elementi sifatida qabul qilinadi. Globallashuv va madaniyatlar migratsiyasi sharoitida vatanparvarlik eskirgan (ayrim kapitalistik davlatlarda hatto ortiqcha, salbiy hissiyot) sifatida qabul qilinishi mumkin. Biroq turkiy xalqlar vakillari madaniyatida vatanparvarlikni ongli tanlash, o‘z yurti taqdiri uchun mas’uliyat g‘oyalariga azaldan bunyodkorlikning asosiy mezonini

sifatida qaralgan. Yosh avlodga ta'lim va tarbiya berishda aynan shu hususiyatni rivojlantirishga alohida e'tibor berilgan.

XX asrning taniqli olimlaridan biri A.Avloniy vatanparvarlikni nafaqat Vatanga muhabbat, balki uning rivoji va ravnaqi jarayonida faol ishtirok etish sifatida ta'riflaydi. Avloniy yoshlarni o'z madaniyati, tarixi va an'alariga hurmat ruhida tarbiyalash zarurligiga alohida e'tibor qaratgan. Uning yondashuvining asosiy jihatlaridan biri vatanparvarlikni odamlarni umumiy maqsad va ideallar atrofida birlashtiruvchi yaxlit qadriyat sifatida tushunish edi. Zamonaviy davrda bu ayniqsa muhimdir, chunki yoshlar ko'pincha turli mafkuralar va madaniy ta'sirlarga duchor bo'lishadi. Vatanparvarlik, Avloniyning fikricha, yoshlarga o'zlik va mansublik masalalariga ongli ravishda yondashish imkonini beradigan o'z tarixini bilish va tushunishga asoslanishi kerak.

Avloniy ta'lim-tarbiya jarayonining vatanparvarlik ongini tarbiyalash vositasi sifatidagi ahamiyatini ham ta'kidlagan. U vatanparvarlik tarbiya dasturining ajralmas qismi bo'lishi kerak, deb hisoblardi, bu yoshlikdan boshlab. Bu tushuncha ta'lim muassasalari global o'zgarishlar bilan bog'liq muammolarga duch kelgan bugungi kunda ham dolzarbdir. Avloniy g'oyalari asoslangan vatanparvarlik tarbiyasi o'quvchilarga nafaqat o'z mamlakatini yaxshiroq tushunishga, balki faol fuqarolik pozitsiyasini shakllantirishga ham yordam beradi.

Avloniy g'oyalari asosida universitetlarda vatanparvarlik tarbiyasining bir qancha yangi uslub va yondashuvlarini ajratib ko'rsatish mumkin. Birinchidan, muhim jihat - loyihaga asoslangan ta'lim, bahs-munozara va rol o'ynash kabi faol ta'lim shakllaridan foydalanish. Bu usullar o'quvchilarga nafaqat ma'lumotni o'zlashtirib olish, balki uni amalda qo'llash imkonini beradi, bu esa vatanparvarlik qadriyatlarini chuqurroq anglashga xizmat qiladi.

Samarali yondashuvlardan biri vatanparvarlik elementlarini fanlararo kurslarga kiritishdir. Masalan, tarix, adabiyot va san'at kurslarida milliy o'zlik va madaniyat bilan bog'liq mavzular bo'lishi mumkin. Bu o'quvchilarga o'z madaniyati va tarixining ahamiyatini tushunishga va o'z mamlakati bilan faxrlanish tuyg'usini rivojlantirishga yordam beradi.

Bundan tashqari, ta'lim jarayonida zamonaviy texnologiyalardan faol foydalanish zarur. Onlayn platformalar, vebinarlar va interfaol darslar yoshlar uchun o'rganishni yanada qulayroq va qiziqarli qilish imkonini beradi. Masalan, virtual muzeylar va tarixga sayohatlar tashkil etish talabalarga o'z mamlakati madaniyati va tarixiga chuqurroq sho'ng'ish imkonini beradi.

Talabalarni ijtimoiy va madaniy loyihalarga jalb qilish ham muhimdir. Bu ko'ngillilik, xayriya tadbirlarida qatnashish yoki madaniy tadbirlarni tashkil etish bo'lishi mumkin. Bunday mashg'ulotlar o'quvchilarda vatanparvarlikning

ahamiyatini yaxshiroq anglabgina qolmay, balki ijtimoiy mas'uliyat ko'nikmalarini shakllantirishga yordam beradi.

Qolaversa, universitet miqyosida vatanparvarlik mavzularini muhokama qilish uchun maydon yaratish talabalarda faol fuqarolik pozitsiyasini shakllantirishga yordam beradi. Vatanparvarlik masalalariga bag'ishlangan bahs-munozaralar, davra suhbatlari, konferensiyalar ushbu muhim mavzu yuzasidan fikr almashish, o'z nuqtai nazarini rivojlantirish maydonchasiga aylanishi mumkin.

Universitetlarning ta'lim dasturlariga vatanparvarlik elementlarini muvaffaqiyatli integratsiyalashganiga ko'plab misollar mavjud. Masalan, ayrim universitetlarda o'lkashunoslik va madaniyat bo'yicha kurslar joriy qilingan bo'lib, unda talabalar nafaqat o'qishadi, balki madaniy merosni asrab-avaylash bilan bog'liq loyiha tadbirlarida ham qatnashadilar. Bu esa ularda o'zligini yaxshiroq anglash, o'z Vatani bilan faxrlanish tuyg'usini shakllantirish imkonini beradi.

Yana bir misol, vatanparvarlikka oid mavzularda bahs-munozaralar, konferensiyalardan foydalanish. Bunday tadbirlarda talabalar zamonaviy jamiyatda vatanparvarlik tuyg'usining mazmun-mohiyati, tanqidiy fikrlash va faol pozitsiyani shakllantirishga xizmat qiladigan o'z fikrlarini bildirishlari mumkin. Jumladan, universitetlardan birida "Globallashuv sharoitida vatanparvarlik" mavzusida anjuman tashkil etilib, unda vatanparvarlik tarbiyasining turli jihatlari, uning yoshlar uchun ahamiyati haqida so'z yuritildi.

Shuningdek, tarixiy obidalar va obidalarga sayohatlar o'tkazish amaliyotini ham alohida ta'kidlash joiz. Bunday ekskursiyalar nafaqat o'quvchilarga o'z tarixini yaxshiroq tushunishga yordam beradi, balki mamlakatning madaniy merosi bilan hissiy aloqani ham shakllantiradi. Universitetlardan birida talabalar yodgorliklarni tiklash loyihasida ishtirok etishdi, bu ularga nafaqat o'qish, balki madaniyatni saqlashda faol ishtirok etish imkoniyatini berdi.

Taklif va tavsiyalar.

Universitetlarda vatanparvarlik tarbiyasiga innovatsion yondashuvlarni samarali tatbiq etish uchun faol ta'lim tamoyillari asosida kurslarni ishlab chiqish tavsiya etiladi. Talabalarda tanqidiy fikrlash va hamkorlik ko'nikmalarini rivojlantirishga yordam beradigan loyiha ishi va guruh muhokamalarini kiritish muhimdir. Shuningdek, ilg'or tajribalarni ommalashtirish imkonini beruvchi universitetlar o'rtasida tajriba almashish uchun platformalar yaratish zarur.

Talabalar bilan muloqot qilish uchun zamonaviy texnologiyalardan faol foydalanish tavsiya etiladi. Onlayn kurslar va vatanparvarlik mavzularidagi veb-seminarlar o'rganishni yanada qulayroq qiladi va yoshlarni muhim masalalar bo'yicha suhbatga jalb qiladi. Virtual muzeylar va tarixiy sayohatlar yaratish

talabalarga o'z mamlakati madaniyati va tarixiga chuqurroq kirib borishlariga yordam beradi.

Bundan tashqari, talabalarni ijtimoiy va madaniy loyihalarga jalb qilish muhim ahamiyatga ega. Bu ularga nafaqat bilim olish, balki o'z g'oyalarini hayotga tatbiq etish imkonini beradi. Universitetlar talabalarda ijtimoiy mas'uliyat va jamiyatda faol ishtirok etish ko'nikmalarini rivojlantirishga yordam beradigan ko'ngilli dasturlarni tashkil qilishi mumkin.

Va nihoyat, universitet miqyosida vatanparvarlik mavzularini muhokama qilish uchun maydon yaratish kerak. Vatanparvarlik masalalariga bag'ishlangan bahs-munozaralar, davra suhbatlari, konferensiyalar ushbu muhim mavzu yuzasidan fikr almashish, o'z nuqtai nazarini rivojlantirish maydonchasiga aylanishi mumkin.

Xulosa

A.Avloniy g'oyalariga asoslangan vatanparvarlik tarbiyasiga innovatsion yondashuvlar faol va mas'uliyatli yoshlarni shakllantirishning muhim vositasidir. Globallashuv bilan bog'liq zamonaviy muammolar oldida bu yondashuvlar milliy o'zlikni anglash va o'z mamlakati bilan faxrlanish tuyg'usini mustahkamlashga yordam beradi. Avloniy didaktik merosini zamonaviy o'quv jarayoniga moslashtirish oliy o'quv yurtlarida vatanparvarlik tarbiyasi samaradorligini sezilarli darajada oshirishi mumkin. Jamiyat hayotida faol ishtirok etishga tayyor, vijdonli fuqarolarni shakllantirishga yordam beradigan sifatli ta'lim berishning yangi usullarini tadqiq etish va joriy etishni davom ettirish muhim ahamiyatga ega.

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PRAGMATIC SIGNS OF THE FEMALE PERSONALITY IN THE TEXT

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Abstract: *This article explores the pragmatic signs of the female personality in literary texts, focusing on how language, communication strategies, and interaction dynamics reflect the complexities of female characters. Through the lens of pragmatics, the study examines various linguistic features and social behaviors that characterize female communication. By employing a qualitative analysis of selected texts, the article identifies key themes such as emotional expression, relational dynamics, and contextual adaptability. The findings highlight the significance of these pragmatic signs in understanding female identity and representation in literature.*

Key words: *personality, pragmatic signs, female characters, linguistic features, literature, communication style, interaction, gender, speech act.*

Introduction. Pragmatics, the study of language in context, plays a crucial role in understanding how female characters communicate and engage with their environments in literary texts. The pragmatic signs of the female personality encompass various aspects, including communication styles, relational dynamics, and contextual adaptability. This article explores these signs, highlighting how they contribute to character development and thematic depth.

In sociolinguistics, language and gender have a close relationship. According to Wardhaugh, the differences between men's and women's speech act can be seen from the structures, vocabularies, and the social roles of the men and women who speak these languages. In line with this, Holmes (2013: 167), in terms of language used, also states there are some differences between the language used by men and women. Women tend to be more standard compared to men. At least there are four different explanations related to these differences. The first appeals to social class and its related status for an explanation, the second refers to women's role in society, the third to women's status as a subordinate group and the fourth to the function of speech act in expressing gender identity, and especially masculinity.

Women have their own features of language that can differentiate them from men. Lakoff (1975) explained that women have ten features of language, those features namely, lexical hedges or fillers, tag questions, rising intonations on declarative, "hypercorrect" grammar, "super polite" forms, avoidance of strong swear words, "empty" adjectives, precise color terms, intensifiers, and emphatic

stress. Besides, the differences between women and men are also found in their speech act. Austin (1962) said that speech acts are an utterance that contains not only information but also actions in communicating. Basically, when someone says something, he or she does something too. The differentiation between women and men's social status also give an impact to their speech act. Based on the interaction of meaning, speech acts can be classified into literal speech acts and nonliteral speech acts.

Gender differences of all kinds fascinate people, and so it is not surprising that there is curiosity about the way women and men talk and whether there are linguistic gender differences. We all have our own views on gender differences – in language and in other aspects of human life. Women and men are similar in many ways, but it is difference which fascinates us, and so we will continue to be in thrall to research which we can read as telling us about women's ways of talking, men's ways of talking, and differences between them. Women's speech sounds much more 'polite' than men's. One aspect of politeness is leaving a decision open, not imposing your mind, or views, or claims, on anyone else. Thus a tag-question is a kind of polite statement, in that it does not force agreement or belief on the addressee. A request may be in the same sense a polite command, in that it does not overtly require obedience, but rather suggests something be done as a favor to the speaker. An overt order (as in an imperative) expresses the (often impolite) assumption of the speaker's superior position to the addressee, carrying with it the right to enforce compliance, whereas with a request the decision on the face of it is left up to the addressee.

The portrayal of female characters in literature has evolved significantly, reflecting changing societal attitudes towards gender roles. Pragmatics, the study of language in context, offers valuable insights into how female characters express their identities and navigate social interactions. This article aims to analyze the pragmatic signs of the female personality in texts, focusing on how these signs manifest through language, communication strategies, and social dynamics. By examining these aspects, the study seeks to contribute to a deeper understanding of female representation in literature.

Methods. To explore the pragmatic signs of female characters, a qualitative approach was employed, which included:

Text Selection: A diverse range of literary works featuring prominent female characters was chosen. These texts included classic literature, contemporary novels, and various genres.

Linguistic Analysis: The analysis focused on identifying specific linguistic features, such as the use of emotional language, rhetorical questions, and

conversational styles. **Contextual Examination:** The study examined how female characters adapt their communication based on social contexts, including family, professional settings, and friendships.

Case Studies: Selected characters were analyzed in-depth to illustrate the pragmatic signs identified in the broader analysis.

Results. 1. **Communication Goals.** Female characters often demonstrate specific communication goals that reflect their personalities and societal roles:

Building Connections: Many female characters prioritize establishing emotional bonds in their conversations. For instance, in *Pride and Prejudice*, Elizabeth Bennet uses wit to engage with others, fostering deeper relationships.

Emotional Support: Female characters frequently aim to provide empathy and understanding. In *The Help*, Aibileen offers emotional support to the children she cares for, emphasizing the nurturing aspect of her personality.

2. **Linguistic Strategies.** The linguistic choices made by female characters reveal their pragmatic signs:

Emotional Language: Female characters often use emotionally charged language to articulate their feelings. Open-ended questions are commonly employed to encourage dialogue and invite others to share their thoughts.

3. **Contextual Adaptability.** Female characters frequently adapt their communication based on the social context:

Situational Flexibility: Characters like Jo March in *Little Women* adjust their speech patterns to suit different social settings, whether in familial discussions or professional aspirations.

Role Awareness: Understanding their roles influences how female characters communicate. For instance, Hester Prynne in *The Scarlet Letter* navigates her identity in a judgmental society, showcasing resilience through her conversations.

4. **Interaction Dynamics.** The dynamics of interaction among female characters often highlight their pragmatic signs:

Supportive Conversations: Female characters typically engage in cooperative dialogue, using affirmations and encouragement. This is evident in the relationships among the March sisters in *Little Women*, where they support each other's dreams.

Non-Verbal Communication: Body language and gestures play a significant role in conveying empathy. In *The Color Purple*, Celie's letters reflect her emotional journey, while her non-verbal cues in interactions with others communicate her growth.

Conclusion. The pragmatic signs of the female personality in texts reveal how language and interaction shape character development. Through their

communication goals, linguistic strategies, contextual adaptability, and interaction dynamics, female characters navigate their social worlds in ways that reflect their identities and experiences. Understanding these pragmatic signs enriches literary analysis, highlighting the complexities of female representation and the societal values embedded within their narratives.

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BILIM FALSAFASI VA METODOLOGIYA

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Annotatsiya: Ushbu maqolada bilim falsafasi va uning metodologiyasi tahlil qilinadi. Bilim falsafasi bilimning mohiyati, uni qanday qilib olish mumkinligi va qanday mezonlar asosida haqiqat sifatida qabul qilish mumkinligini o'rganadi. Metodologiya esa bilimga erishish jarayonini boshqaruvchi tamoyillar va usullar majmuasidir. Maqolada zamonaviy ilmfan metodologiyasining roli, bilish usullari va bilim mezonlari muhokama qilinadi. Falsafiy nuqtai nazardan ilmiy bilimga qanday yondashish zarurligi masalasi ko'rib chiqiladi. Ushbu maqola falsafiy bilish metodlari va zamonaviy ilmiy tadqiqotlar uchun foydali bo'lgan yondashuvlarni ham qamrab oladi.

Kalit so'zlar: Bilim falsafasi, metodologiya, bilim, ilmiy bilish, haqiqat, falsafa, epistemologiya, bilish usullari.

Kirish. Insoniyat bilishga intilgan sayin, haqiqatni anglashga yaqinlashadi. Bilim inson tafakkurini kengaytirish va uni rivojlantirishda muhim o'rin tutadi. Bilim falsafasi esa bilish jarayoni, bilimning mohiyati va qabul qilinishi lozim bo'lgan mezonlarni o'rganadi. Falsafada "bilim" tushunchasiga to'g'ri ta'rif berish,

uni ilmiy va boshqa bilish shakllaridan ajratish muhim masala hisoblanadi. Shu bilan birga, ilmiy bilishga qanday usullar orqali erishish va bu usullarning haqiqiylikni tekshirish zaruriyati ham mavjud. Bilim inson tafakkurining mahsuli sifatida qaraladi va u insoniyatning rivojlanishida muhim o‘rin tutadi. Bilim falsafasi – falsafaning bir sohasi bo‘lib, bilish jarayoni va bilimning asosiy tushunchalarini o‘rganadi. Bu soha bilimning qanday paydo bo‘lishini, haqiqatni qanday tushunishimiz mumkinligini va bilimni qanday qilib haqiqat sifatida qabul qilishimiz mumkinligini o‘rganadi. Bilim falsafasi ilmiy bilish jarayonida foydalaniladigan metodlar, tamoyillar va qoidalarning aniqlanishiga ham e’tibor beradi.

Metodologiya – bilim olish jarayonini belgilovchi tamoyillar va usullar tizimi sifatida o‘rganiladi. Ilmiy bilish jarayonida turli metodlar qo‘llanilib, bilim olingan natijalarning to‘g‘riligi va obyektivligini aniqlash uchun maxsus uslublar qo‘llaniladi. Ushbu maqolada bilim falsafasi va metodologiyaning falsafiy jihatlari, bilish jarayonidagi muhim tamoyillar va metodlarning ahamiyati tahlil qilinadi. Metodologiya esa bilishga yo‘naltirilgan usullar va qoidalar tizimi bo‘lib, ilmiy tadqiqotlar va bilish jarayonining to‘g‘riligi, haqqoniylikni ta‘minlash uchun zarurdir. U nafaqat ilmiy bilimning asoslanishini, balki bilishning umumiy qoidalari, obyektivlik, haqqoniylik, tadqiqotning tizimlilik va uslubiy asoslarga rioya qilish masalalarini ham ko‘rib chiqadi.

1. Bilim falsafasi tushunchasi

Bilim falsafasi (epistemologiya) bilish jarayoni va bilimning mohiyati bilan shug‘ullanadi. Falsafada bilimni aniqlashda bir nechta asosiy savollar mavjud: "Nima haqiqat?", "Bilim qanday vujudga keladi?" va "Biz nimalarni ishonchli bilim deb qabul qilishimiz mumkin?" Bu savollar odamlarning dunyoqarashini va bilimga bo‘lgan munosabatini shakllantiradi.

Bilim falsafasi an’anaviy ravishda uchta mezonni o‘rganadi: haqiqat, ishonchlilik va asoslanish. Haqiqiy bilim haqiqatni aks ettirishi va uni tasdiqlash imkoniyati mavjud bo‘lishi kerak. Ushbu mezonlar falsafiy bilish jarayonini chuqurroq anglashga yordam beradi.

2. Bilimning kelib chiqishi va haqiqat tushunchasi

Bilimning kelib chiqishi va qanday paydo bo‘lishi masalasi ham falsafiy jihatdan dolzarb hisoblanadi. Platon bilimni haqiqiy, asosli va ishonchli bilim deb ta’riflagan bo‘lsa, Aristotel esa bilimni tajriba orqali olingan ma’lumotlar sifatida tushungan. Zamonaviy falsafa bilimning mantiqiy asoslari, shubhalar va xatolardan himoyalangan bilimni muhim deb hisoblaydi.

3. Metodologiya va uning bilim olish jarayonidagi o‘rni

Metodologiya ilmiy bilishning usul va tamoyillarini aniqlashga qaratilgan. Bu usullar obyektivlik va haqqoniylikni ta'minlash uchun zarur bo'lgan qoidalarni o'z ichiga oladi. Metodologik yondashuvlar ilmiy tadqiqotlar, kuzatish, eksperiment va nazariy tahlil usullari orqali amalga oshiriladi. Shu bilan birga, ilmiy tadqiqot natijalari haqiqatga yaqin bo'lishi uchun obyektiv va asosli metodlardan foydalanish lozim.

Ilmiy bilishda kuzatish va eksperiment asosiy rol o'ynaydi. Ayniqsa, tabiiy fanlar metodologiyasida kuzatish va eksperiment usullari orqali bilimga erishiladi. Gumanitar fanlarda esa analitik va tanqidiy metodlar qo'llaniladi. Shu bilan birga, har bir fanda maxsus usullar va metodlar qo'llanilishi lozim.

4. Bilish jarayonida subyektivlik va obyektivlik masalasi

Bilish jarayonida obyektivlik va subyektivlik muhim rol o'ynaydi. Ilmiy tadqiqotlarda subyektiv elementlardan himoyalanih uchun maxsus metodlar va texnikalar qo'llaniladi. Falsafiy nuqtai nazardan, haqiqat obyektiv bo'lishi kerak, ammo ba'zi bilimlar insoniy tajriba va tafakkur natijasida subyektiv tus oladi. Shu bois, ilmiy metodlarda obyektivlikka katta ahamiyat beriladi.

5. Zamonaviy metodologiyalarda ilmiy bilishning yangi usullari

Zamonaviy ilmiy metodologiya texnologiyalar rivoji tufayli yangi bosqichga chiqmoqda. Masalan, sun'iy intellekt va data tahlili ilmiy tadqiqotlarning samaradorligini oshirmoqda. Ushbu yangi metodologik yondashuvlar orqali ilm-fan yangi bilimlarga ega bo'lmoqda. Bu o'z navbatida falsafiy bilish tamoyillariga yangi yondashuvlarni ham kiritadi.

Xulosa. Bilim falsafasi va metodologiya ilmiy bilish jarayonini va bilimning mohiyatini o'rganishda muhim yo'nalishlardandir. Bu jarayonning har bir bosqichi ilmiy haqiqatni anglash va ilmiy bilimni o'zlashtirish uchun zaruriy hisoblanadi. Bilimni anglash jarayonida obyektivlik va metodologik aniq yondashuvlar orqali haqiqatga erishish imkoniyati oshadi. Zamonaviy texnologiyalar va yangi metodologik yondashuvlar esa bilish jarayonini yanada samarali qiladi. Ushbu maqola orqali bilim falsafasi va metodologiya haqidagi asosiy tushunchalar tahlil qilindi va ularning ilmiy bilish jarayonidagi ahamiyati ochib berildi.

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RAQAMLI MUHITDA KREATIV O'QITUVCHILARNI TAYYORLASHNING INTERAKTIV VOSITALARI

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Annotatsiya: Maqolada raqamli muhitda kreativ o'qituvchilarni tayyorlashda interaktiv vositalarning roli va ahamiyati tahlil qilinadi. Zamonaviy texnologiyalar va raqamli resurslar yordamida bo'lajak o'qituvchilarning ijodkorligini shakllantirish imkoniyatlari ko'rib chiqiladi. Ushbu maqola raqamli ta'lim muhitida kreativlikni oshirishga yordam beruvchi innovatsion yondashuvlarni, raqamli vositalarning ijodkor o'qituvchilarni tayyorlashdagi afzalliklari va qiyinchiliklarini o'rganishga bag'ishlanadi. Interaktiv vositalarning ta'lim jarayoniga ta'siri va ularning ijodiy ta'lim berishda qanchalik samarali ekanligi ko'rsatib beriladi.

Kalit so'zlar: Raqamli muhit, kreativ o'qituvchi, interaktiv vositalar, ta'lim texnologiyalari, ijodkorlik, didaktik yondashuvlar

XXI asrda ta'lim sohasi jadal sur'atlarda raqamli texnologiyalarga asoslanib rivojlanmoqda. Zamonaviy o'qituvchilarga faqatgina nazariy bilimlar yetarli emas, balki ular raqamli muhitda interaktiv vositalar bilan ishlay olish qobiliyatiga ega bo'lishlari talab qilinadi. Kreativ o'qituvchilarni tayyorlash jarayonida raqamli texnologiyalar va interaktiv vositalardan foydalanish muhim ahamiyat kasb etadi, chunki bu vositalar nafaqat o'quv jarayonini osonlashtiradi, balki o'qituvchilarni ijodiy va innovatsion yondashuvlarga yo'naltiradi.

Bugungi kunda raqamli muhitda ta'lim jarayonini tashkil etish orqali o'qituvchilar va talabalar o'rtasida yangi o'quv va o'qitish usullari paydo bo'lmoqda. Bo'lajak o'qituvchilarning ijodkorlik qobiliyatlarini shakllantirish hamda ularning ta'lim berish usullarini interaktiv va zamonaviy qilish, raqamli texnologiyalar yordamida yanada yuksaladi. Bu jarayonda eng muhimi – o'qituvchilarning kreativliklarini rivojlantiruvchi vositalarni samarali qo'llashdir.

Raqamli muhitning ta'lim jarayoniga kiritilishi o'qituvchilar uchun yangi imkoniyatlarni ochib beradi. Bu jarayon o'quv materiallarini taqdim etish, talabalar bilan aloqani o'rnatish va darsni interaktiv qilishda yordam beradi. Bunday muhit o'qituvchilarning ijodkorliklarini shakllantirishda katta rol o'ynaydi, chunki u ularga o'quv jarayonida yangi texnologik yondashuvlarni qo'llash imkoniyatini

beradi. Shu sababli, raqamli vositalardan foydalangan holda, o'qituvchilar o'z darslarida innovatsion yondashuvlarni tatbiq etib, ta'lim jarayonini qiziqarli va samarali tashkil eta oladilar.

Kreativ o'qituvchilar – bu darslarni ijodiy yondashuvlar bilan tashkil etadigan, o'quvchilarga turli xil yondashuvlarni taklif qiladigan va o'quv jarayonini qiziqarli qilish uchun yangiliklardan foydalanadigan o'qituvchilardir. Bunday o'qituvchilar o'z o'quvchilarining ta'lim olish jarayoniga ijobiy ta'sir ko'rsatib, ularning intellektual rivojlanishiga katta hissa qo'shadilar. Kreativlik o'qituvchilarni faqatgina ta'lim mazmunini yaxshilash bilan cheklab qo'ymaydi, balki ular orqali ta'lim oluvchilarda mustaqil fikrlash, muammolarni hal qilish, tanqidiy yondashuv kabi qobiliyatlarni shakllantirish mumkin.

Interaktiv vositalar o'qituvchilarga va o'quvchilarga o'quv jarayonida faol ishtirok etish va hamkorlik qilish imkonini beruvchi texnologiyalardir. Bunday vositalar orqali o'quvchilar bilan dars jarayonini yanada samarali qilish mumkin. Interaktiv vositalarga onlayn taqdimot dasturlari, testlar, kvizlar, diskussiya platformalari, virtual ta'lim vositalari va boshqalar kiradi.

Bu vositalar yordamida o'quvchilar faqatgina bilim olish emas, balki bu jarayonda faol ishtirok etish, o'z g'oyalarini namoyon qilish va ijodkorlik qobiliyatlarini rivojlantirish imkoniyatiga ega bo'ladilar. Shu sababli, interaktiv vositalardan foydalangan holda o'qituvchilar o'quvchilarni dars jarayonida qiziqtirib, ularning kreativligini rivojlantirishi mumkin.

Interaktiv vositalar ta'lim jarayonida katta ahamiyat kasb etadi. Darslarda turli xil interaktiv dasturlardan foydalanish o'quvchilarni dars jarayonida faol ishtirok etishga undaydi, ularning qiziqishini oshiradi va o'quv materialini yaxshiroq o'zlashtirishlariga yordam beradi. Bunday vositalardan foydalangan holda o'qituvchilar o'quvchilarga nazariy bilimlarni amaliyotda qo'llash imkoniyatini yaratadilar.

Misol uchun, Google Classroom, Zoom, Microsoft Teams kabi platformalar o'qituvchilar uchun ta'lim jarayonini interaktiv tashkil qilishda katta yordam beradi. Ushbu platformalar yordamida o'qituvchilar talabalar bilan interaktiv tarzda muloqot qilishlari, o'quv materiallarini onlayn tarzda taqdim etishlari va o'quvchilarning ijodkorliklarini shakllantirishlari mumkin. Shu bilan birga, raqamli vositalar yordamida guruhli faoliyatlar, loyiha asosida o'qitish metodlari keng ko'lamda qo'llaniladi.

Loyiha asosida o'qitish metodikasi o'quvchilarga mustaqil ijodiy vazifalarni bajarish imkoniyatini yaratadi. Raqamli vositalardan foydalangan holda o'qituvchilar talabalarga real hayotiy vaziyatlarda duch kelinadigan muammolarni hal qilish uchun loyiha tayyorlashni taklif qilishlari mumkin. Bu jarayon

o'quvchilarda ijodiy va tanqidiy fikrlash ko'nikmalarini shakllantiradi, ularga o'z g'oyalari amalda sinash imkonini beradi.

Masalan, talabalar virtual laboratoriyalarda yoki onlayn simulyatsiyalar yordamida loyihalar yaratishlari, o'zaro hamkorlik qilishlari va o'rganayotgan fanlariga innovatsion yondashuvlarni qo'llashlari mumkin. Shu bilan birga, o'qituvchilar loyiha ustida ishlash jarayonida o'quvchilarning faoliyatini nazorat qilib, ularni motivatsiya qilish va kerakli maslahatlar berish orqali ularning ijodiy rivojlanishiga yordam beradilar.

Multimedia vositalari o'quv jarayonini yanada jonli va samarali tashkil qilishga yordam beradi. Bo'lajak o'qituvchilar multimedia texnologiyalaridan foydalanib, o'quvchilar uchun qiziqarli va ijodiy darslarni tashkil eta oladilar. Masalan, video darslar, animatsiyalar, infografikalar, podkastlar yordamida dars mazmunini yanada tushunarli qilish va murakkab tushunchalarni osonroq tushuntirish mumkin.

Bundan tashqari, multimedia resurslari orqali o'qituvchilar darslarda vizual va audial vositalarni birlashtirib, o'quvchilarning e'tiborini yanada samarali jalb qilishi mumkin. Shu bilan birga, o'quvchilar multimedia vositalari orqali o'z loyihalarini taqdim qilish imkoniyatiga ega bo'ladilar, bu esa ularda nafaqat ijodkorlik, balki texnologiyalardan samarali foydalanish ko'nikmalarini ham rivojlantiradi.

Raqamli muhitda kreativ o'qituvchilarni tayyorlashda interaktiv vositalar juda muhim rol o'ynaydi. Ular o'qituvchilarga ta'lim jarayonini innovatsion va ijodiy tarzda tashkil qilish imkoniyatini beradi. Bunday vositalar o'quvchilar bilan samarali muloqot o'rnatish, o'quv materiallarini taqdim etish va ta'lim jarayonini qiziqarli qilishda katta yordam beradi.

Interaktiv vositalardan foydalanish orqali o'qituvchilar o'z darslarida ijodkorlikni rivojlantirishlari, o'quvchilarga yangi yondashuvlarni taqdim etishlari va ularning o'qitish usullarini innovatsion qilishlari mumkin. Shu bilan birga, o'qituvchilar raqamli vositalar yordamida o'quvchilarni dars jarayonida faol ishtirok etishga undaydi va ularning ijodiy fikrlashini rivojlantiradi.

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TALABALARNING AMALIY KOMPETENSIYASINI RIVOJLANTIRISHDA VIRTUAL REALLIK SIMULYATSIYALARINING O‘RNI

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Annotatsiya: *Ushbu maqolada talabalarning amaliy kompetensiyalarini rivojlantirishda virtual reallik (VR) simulyatsiyalarining o‘rni tahlil qilinadi. VR texnologiyalari ta‘lim jarayonini interaktiv va vizual tarzda tashkil etish imkonini beradi, bu esa amaliy tajriba orttirishni osonlashtiradi. Talabalar simulyatsiyalar orqali real hayotdagi murakkab vaziyatlarni xavfsiz muhitda o‘rganib, o‘z amaliy ko‘nikmalarini rivojlantirishlari mumkin. Maqolada VR simulyatsiyalarining afzalliklari, ularning ta‘lim jarayonidagi o‘rni va qo‘llanilish metodologiyasi ko‘rib chiqiladi.*

Kalit so‘zlar: *Virtual reallik (VR) simulyatsiya, amaliy kompetensiya vizualizatsiya, interaktiv ta‘lim, ta‘lim texnologiyalari*

Zamonaviy ta‘lim jarayonida amaliy kompetensiyalarni rivojlantirish muhim ahamiyat kasb etmoqda. Talabalar nazariy bilimlarga ega bo‘lishdan tashqari, real hayotdagi muammolarni hal qilish uchun zarur bo‘lgan amaliy ko‘nikmalarga ham ega bo‘lishlari kerak. An‘anaviy ta‘lim usullari o‘quvchilarga ba‘zan amaliy mashg‘ulotlar uchun yetarlicha imkoniyat yaratmaydi, chunki ko‘pgina amaliy mashg‘ulotlar xavfli yoki juda murakkab bo‘lishi mumkin. Bunday vaziyatlarda virtual reallik (VR) texnologiyalari talabalarga xavfsiz muhitda amaliy tajriba olish imkonini beradi.

Virtual reallik yordamida o‘tkaziladigan simulyatsiyalar ta‘lim jarayonida real holatlarni yaratib, talabalarni ular bilan ishlashga jalb qiladi. Talabalar VR simulyatsiyalari orqali o‘quv materiallarini vizualizatsiya qilish, murakkab jarayonlarni amalda sinab ko‘rish va turli muammolarni hal qilish imkoniga ega bo‘ladilar. Ushbu maqolada VR texnologiyalari yordamida talabalarning amaliy kompetensiyalarini qanday rivojlantirish mumkinligi haqida batafsil so‘z yuritiladi.

Virtual reallik texnologiyalari so'nggi yillarda ta'lim jarayonida keng qo'llanilmoqda. Ilk bosqichlarda ko'proq o'yinlar va ko'ngilochar ilovalar uchun ishlab chiqilgan bu texnologiya hozirda ta'lim sohasida innovatsion vosita sifatida ishlatilmoqda. VR texnologiyalari orqali talabalar an'anaviy darslardan farqli o'laroq, o'zlarini o'quv materiallari bilan faol bog'lab, interaktiv tajriba olishlari mumkin.

Bu texnologiya o'qitish jarayonini jonli va qiziqarli qilish imkonini berib, talabalarni o'quv jarayoniga chuqurroq jalb etadi. Ayniqsa, texnika va tabiiy fanlar bo'yicha murakkab amaliy mashg'ulotlarni VR yordamida simulyatsiya qilish katta afzalliklarga ega.

Ta'limda VR texnologiyalarining qo'llanilishi bir qator afzalliklarga ega:

-Interaktiv o'quv jarayoni: VR texnologiyalari o'quvchilarga o'rganayotgan mavzularni vizual tarzda tushunish va ular bilan bevosita o'zaro bog'lanish imkonini beradi. Bu talabalar o'quv jarayonida faolroq ishtirok etishlariga yordam beradi.

-Xavfsiz muhitda amaliy mashg'ulotlar: Ko'pgina amaliy mashg'ulotlar real hayotda xavfli bo'lishi mumkin. VR orqali talabalar bunday xavflarni sezmasdan, murakkab vaziyatlarni o'rganishlari va muammolarni hal qilishlari mumkin.

-Chuqur o'zlashtirish: VR texnologiyalari yordamida talabalar nazariy bilimlarni chuqurroq o'zlashtiradilar, chunki ular bu bilimlarni amalda qo'llash imkoniyatiga ega bo'ladilar.

Amaliy kompetensiya – bu talabalar nazariy bilimlarni real sharoitlarda qo'llay olish qobiliyati. Texnik bilimlarni o'zlashtirishda nazariy bilimlar yetarli emas, chunki talabalar muammolarni amaliy tarzda hal qilish qobiliyatiga ham ega bo'lishlari kerak. Amaliy mashg'ulotlar talabalarni real vaziyatlarga tayyorlashda asosiy rol o'ynaydi, ammo ba'zi holatlarda bu mashg'ulotlar murakkab yoki qimmat bo'lishi mumkin.

Virtual reallik texnologiyalari bu muammoni hal qilish uchun qulay yechimdir. VR yordamida yaratilgan simulyatsiyalar real hayotdagi holatlarni qayta yaratadi va talabalar o'z bilimlarini amalda sinab ko'rishlari mumkin bo'ladi. Bu jarayon nazariy va amaliy bilimlar o'rtasidagi bo'shliqni to'ldirishga yordam beradi.

VR simulyatsiyalari o'qituvchilarga talabalarni real muhitga tayyorlashda bir qator afzalliklarni taqdim etadi:

-Tajriba orttirish: Talabalar real hayotda duch keladigan vaziyatlarni simulyatsiyalar yordamida o'rganadilar. Bu ularga amaliy tajriba orttirish imkonini beradi.

-Xatolarni xavfsiz sinab ko‘rish: VR simulyatsiyalari talabalar uchun xavfsiz muhitda xatolarni sinab ko‘rish va ulardan o‘rganish imkonini beradi.

-Tejamkorlik: VR simulyatsiyalari yordamida qimmatbaho asbob-uskunalar yoki resurslar talab qilmaydi, bu esa amaliy mashg‘ulotlarni o‘tkazishda samaradorlikni oshiradi.

VR simulyatsiyalari orqali amaliy mashg‘ulotlarni tashkil qilishda o‘qituvchilar bir qator metodik bosqichlardan o‘tishlari kerak:

1. Talabalarni tayyorlash: Talabalarni VR texnologiyalaridan qanday foydalanishni o‘rgatish va ular bilan tanishtirish.

2. Muammoli vaziyatlarni yaratish: Simulyatsiyalar real hayotdagi muammoli vaziyatlarni qayta yaratishi va talabalarni bu vaziyatlarni hal qilishga undashi kerak.

3. Tahlil va qayta aloqa: Talabalarning faoliyatini kuzatish va ularning qilgan xatolarini tahlil qilish. Bu orqali talabalar o‘z xatolaridan saboq olishlari mumkin.

VR texnologiyalari orqali talabalarni baholash an’anaviy baholash usullaridan farq qiladi. Simulyatsiyalar davomida talabalarning faoliyati bevosita tahlil qilinadi va ularning har bir qadami qayd etiladi. Bu jarayon talabalar bilim va ko‘nikmalarini chuqurroq o‘rganishga yordam beradi.

Baholash jarayonida o‘qituvchilar talabalarni quyidagi jihatlar bo‘yicha tahlil qilishlari mumkin:

-Muammolarni hal qilish qobiliyati: Talaba real vaziyatlarda qanday qaror qabul qiladi va muammoni qanchalik samarali hal qiladi.

-Texnik bilimlarni qo‘llash: Talaba nazariy bilimlarini qanday amalda qo‘llaydi.

-Faollik va ijodkorlik: Talabaning mustaqil fikrlash va ijodiy yondashish qobiliyatlari.

VR simulyatsiyalari ta’lim jarayonini yanada interaktiv qilish imkonini beradi. Talabalar passiv o‘quvchilar bo‘lib qolmay, balki ta’lim jarayonida faol ishtirok etadilar.

Bu jarayon ularning amaliy kompetensiyalarini rivojlantirishga yordam beradi va ularni real hayotdagi muammolarni hal qilishga tayyorlaydi.

VR texnologiyalarining kelajakdagi ta’limda qo‘llanilishi yanada kengayadi. Bu texnologiyalar yordamida o‘quv dasturlarining yanada kengroq sohalari o‘zlashtiriladi va talabalar uchun yanada murakkab va qiziqarli amaliy mashg‘ulotlar tashkil etiladi. VR simulyatsiyalari kelajakda ta’lim jarayonining ajralmas qismi bo‘lib qoladi.

Xulosa

Virtual reallik simulyatsiyalari talabalar uchun amaliy kompetensiyalarni rivojlantirishda samarali vosita hisoblanadi. Ushbu texnologiyalar yordamida o'quvchilar real hayotdagi muammolarni hal qilishni o'rganadilar, o'z bilim va ko'nikmalarini sinab ko'radilar hamda chuqurroq o'zlashtiradilar. VR texnologiyalari ta'lim jarayonini interaktiv va qiziqarli qilishga yordam beradi, bu esa talabalarni kelajakdagi muvaffaqiyatlarga tayyorlashda muhim ahamiyatga ega.

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JAMIYAT VA MADANIYAT FALSAFASI

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Annotatsiya: Ushbu maqolada jamiyat va madaniyatning falsafiy talqini ko'rib chiqiladi. Jamiyat va madaniyat tushunchalarining falsafiy jihatlari, inson hayoti va jamiyatdagi o'rni, shuningdek, madaniyat va axloqning shakllanishi va rivojlanishidagi ahamiyati haqida fikr yuritiladi. Ushbu maqola madaniyatning jamiyatdagi roli, qadriyatlar tizimi va ijtimoiy jarayonlarni tushunish uchun zarur falsafiy yondashuvlarni o'z ichiga oladi.

Kalit so'zlar: Jamiyat falsafasi, madaniyat, axloq, qadriyatlar, ijtimoiy jarayon, madaniyat evolyutsiyasi, madaniyat va jamiyat, inson va madaniyat.

Kirish. Jamiyat va madaniyat – insoniyat tarixidagi eng asosiy tushunchalardandir. Inson tabiatida boshqa odamlarga bog'liq holda hayot kechirish, guruhlar va jamiyatlar hosil qilish muhim o'rin tutadi. Jamiyatni o'rganishda uning madaniy jihatlari muhim hisoblanadi. Madaniyat – bu insonning o'z ehtiyoj va qadriyatlarini aks ettirish shaklidir. Jamiyat va madaniyat o'zaro chambarchas bog'langan, chunki jamiyat madaniyatni yaratadi va rivojlantiradi, madaniyat esa jamiyatni rivojlanishiga turtki beradi.

Ushbu maqola jamiyat va madaniyat tushunchalarini falsafiy tahlil qilishga qaratilgan. Madaniyat inson hayotiga qanday ta'sir qilishi, qadriyatlarining shakllanishi va jamiyatdagi o'zgarishlarga qanday ta'sir ko'rsatishi haqidagi savollar yoritiladi.

1. Jamiyat falsafasi: Umumiy tushuncha

Jamiyat falsafasi jamiyatning mohiyati, uni tashkil etuvchi asosiy omillar va insonlarning ijtimoiy munosabatlari masalalarini o'rganadi. Falsafa jamiyatni inson hayotining asosiy mazmuni sifatida ko'rib chiqadi.

Asosiy savollar:

Jamiyat nima va u qanday shakllanadi?

Jamiyat va insonning o‘zaro ta’siri qanday bo‘ladi?

2. Madaniyatning falsafiy tushunchasi

Madaniyat falsafasi madaniyatning mohiyatini, uning jamiyatdagi rolini va qanday qilib insonning shaxs sifatida shakllanishida ta’sir qilishi masalalarini ko‘rib chiqadi. Madaniyat nafaqat san’at yoki adabiyot, balki insoniyat tarixida shakllangan qadriyatlar, urf-odatlar va jamiyat tomonidan qabul qilingan axloqiy tamoyillar yig‘indisidir.

Asosiy yo‘nalishlar:

Madaniyat va qadriyatlar tizimi

Axloqiy va estetik madaniyat tushunchalari

3. Jamiyat va madaniyatning o‘zaro aloqasi

Jamiyat va madaniyat bir-biriga ta’sir ko‘rsatadi. Madaniyat insonlarning o‘zaro munosabatlarini, ularning qadriyatlar va axloqiy tamoyillarini belgilab beradi. Bunda madaniyat jamiyatdagi o‘zgarishlarga va ijtimoiy jarayonlarga turtki bo‘lishi mumkin.

Mavzular:

Jamiyatni rivojlantiruvchi madaniy omillar

Madaniyat va ijtimoiy o‘zgarishlar

4. Madaniyat va axloq falsafasi

Axloq – madaniyatning asosiy komponenti bo‘lib, u jamiyatda ma’lum bir xulq-atvor me’yorlarini belgilaydi. Axloqiy tamoyillar madaniyatning bir qismi sifatida rivojlanib, jamiyatda axloqiy qadriyatlar tizimini shakllantiradi.

Asosiy savollar:

Axloqiy qadriyatlar va madaniyat

Axloqiy tamoyillarni shakllantiruvchi omillar

5. Jamiyat va madaniyatning evolyutsiyasi

Jamiyat va madaniyat bir joyda to‘xtab qolmaydi, balki doimiy o‘zgarish va rivojlanish jarayonida bo‘ladi. Madaniyatning evolyutsiyasi ham insoniyat rivojlanishining muhim jihatidir. Bu jarayonda axloq, qadriyatlar va madaniyatning boshqa tarkibiy qismlari ham o‘zgaradi.

Yo‘nalishlar:

Madaniyat evolyutsiyasi

Zamonaviy jamiyatda madaniyatning o‘rni

Jamiyatning falsafiy talqini

Jamiyat falsafasi jamiyatning shakllanishi, tuzilishi va uning inson hayotidagi o‘rnini tushuntirishga qaratilgan ilmiy yo‘nalishdir. Bu soha jamiyatning mohiyatini, insonlarning ijtimoiy munosabatlarida qanday o‘zaro

bog'liqliklar mavjudligini va jamiyatning rivojlanish yo'llarini o'rganadi. Jamiyat falsafasi quyidagi savollarga javob berishga harakat qiladi:

Jamiyat qanday shakllanadi va rivojlanadi?

Jamiyatni tashkil etuvchi asosiy omillar qanday?

Inson va jamiyat o'rtasidagi o'zaro ta'sir qanday amalga oshadi?

Bu savollar jamiyatning qanday tarkibiy qismlar va ijtimoiy munosabatlar orqali faoliyat ko'rsatishini, jamiyatning rivojlanishida odamlarning roli qanchalik muhim ekanligini aniqlashga yordam beradi.

Jamiyat va shaxs o'rtasidagi munosabatlar

Jamiyat va shaxs o'zaro bog'liq bo'lib, bir-birini to'ldiradi. Jamiyat shaxsni shakllantiradi, unga axloqiy va ijtimoiy qadriyatlarni singdiradi. Shaxs esa o'zining individual xatti-harakatlari orqali jamiyatga ta'sir ko'rsatadi. Falsafada shaxs va jamiyat munosabatlari masalasi doimiy muhokama qilib kelinmoqda. Masalan, faylasuf J.-J. Russo jamiyat insonning tabiiy erkinligini cheklashi mumkinligi haqida fikr yuritgan. Biroq boshqa faylasuflar, masalan, G. Hegel, jamiyatni shaxsning rivojlanishining asosi deb hisoblashadi.

Madaniyatning falsafiy tushunchasi

Madaniyat jamiyatning ajralmas qismi sifatida insoniyatning intellektual, axloqiy va estetik tamoyillarini o'zida aks ettiradi. Madaniyat – bu bilimlar, qadriyatlar, san'at, til, din, me'yorlar va urf-odatlar yig'indisi bo'lib, u jamiyatning o'ziga xosligini belgilaydi. Falsafiy nuqtai nazardan, madaniyat inson tafakkurining mahsuli sifatida ko'rib chiqiladi va insoniyat tarixida muhim o'rin tutadi.

Madaniyatning tarkibiy qismlari

Madaniyat quyidagi asosiy tarkibiy qismlardan tashkil topgan:

Axloq: Axloq madaniyatning ajralmas qismi bo'lib, jamiyatdagi xatti-harakat qoidalarini belgilaydi. Axloqiy me'yorlar insonlarning jamiyatda qanday xulq-atvor namoyish etishini aniqlaydi va ijtimoiy munosabatlarda muhim ahamiyatga ega.

Qadriyatlar: Jamiyat qadriyatlari insonlarning qanday qadriyatlarni qabul qilishlari va ularga amal qilishlari orqali shakllanadi. Qadriyatlar madaniyatda axloqiy, diniy, estetik va ijtimoiy me'yorlar orqali ifodalanadi.

An'analar va urf-odatlar: Jamiyatda shakllangan an'ana va urf-odatlar madaniyatning asosiy qismidir. Ular insonlar o'rtasidagi munosabatlarni mustahkamlashga xizmat qiladi.

Jamiyat va madaniyatning o'zaro aloqasi

Jamiyat va madaniyat bir-birini to'ldiradi va ular o'zaro aloqada bo'ladi. Madaniyat jamiyat tomonidan yaratilgan qadriyatlar tizimi bo'lib, u insonlarning

turmush tarzini, axloqiy qarashlarini belgilaydi va jamiyatning umumiy ko‘rinishini shakllantiradi. Aynan madaniyat jamiyatdagi turli sohalarni (san'at, ilm-fan, adabiyot, diniy qarashlar va boshqalar) rivojlantiradi.

Madaniyat va ijtimoiy o‘zgarishlar

Madaniyatning rivojlanishi va o‘zgarishi bilan jamiyat ham o‘zgaradi. Masalan, globallashuv jarayoni madaniyatlarning bir-biriga ta'sir qilishi va ularning birlashuviga sabab bo‘lmoqda. Bu esa jamiyatdagi ijtimoiy o‘zgarishlar va yangilanishlarni keltirib chiqaradi. Madaniyat yangi texnologiyalar, g‘oyalar va qadriyatlar orqali yangilanib boradi va jamiyatga zamonaviylikni olib keladi.

Xulosa. Jamiyat va madaniyat falsafasi jamiyatdagi ijtimoiy jarayonlarni tushunish va ularga falsafiy yondashish uchun muhim ahamiyatga ega. Madaniyat jamiyatni rivojlantiradi, unga mazmun bag‘ishlaydi va insonlarning o‘zaro munosabatlarida asosiy rol o‘ynaydi. Jamiyat va madaniyat o‘zaro bir-birini to‘ldirib, yangi o‘zgarishlar va rivojlanishlar uchun asos yaratadi. Ushbu maqola orqali jamiyat va madaniyatning o‘zaro aloqasi, ularning rivojlanishidagi falsafiy yondashuvlar yoritildi.

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ONLAYN TA'LIMDA O'QITUVCHILARNING KREATIV QOBILIYATLARINI OSHIRISH: YANGI IMKONIYATLAR VA QIYINCHILIKLAR

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Annotatsiya: Ushbu maqola onlayn ta'lim muhitida o'qituvchilarning kreativ qobiliyatlarini rivojlantirish imkoniyatlari va qiyinchiliklarini o'rganishga qaratilgan. Raqamli texnologiyalarning rivojlanishi o'qituvchilarga yangi vositalar va usullarni taqdim etib, ularga ijodiy yondashuvlarni qo'llash imkoniyatlarini yaratadi. Shu bilan birga, raqamli platformalar orqali ta'lim jarayonida yuzaga keladigan texnik va didaktik qiyinchiliklar ijodkorlikni rivojlantirish jarayoniga to'sqinlik qilishi mumkin. Ushbu maqolada onlayn ta'limda o'qituvchilarning ijodiy salohiyatini oshirishda foydalaniladigan vositalar, metodlar va raqamli didaktik materiallarning roli tahlil qilinadi hamda ushbu jarayonni yanada samarali qilish uchun mavjud to'siqlar va ularni bartaraf etish yo'llari muhokama qilinadi.

Kalit so'zlar: Onlayn ta'lim, kreativ qobiliyatlar, raqamli texnologiyalar, didaktik vositalar o'qituvchilarning ijodkorligi, raqamli didaktika, yangi imkoniyatlar, qiyinchiliklar

So'nggi yillarda raqamli texnologiyalarning rivojlanishi ta'lim jarayoniga katta ta'sir ko'rsatmoqda. An'anaviy dars metodlarini raqamli platformalar yordamida to'ldirish va yangilash imkoniyati o'qituvchilarga darsni o'tkazishda yangi va ijodiy usullarni qo'llash imkonini beradi. Onlayn ta'lim platformalarining ko'payishi, virtual maktablar va universitetlar joriy etilishi o'qituvchilarga ta'limning yangi formatlarini o'rganishga va qo'llashga majbur qilmoqda. Ayniqsa, bo'lajak o'qituvchilar uchun bu juda muhim, chunki ular zamonaviy texnologiyalar bilan tanishib, o'z ta'lim usullarini moslashtirishlari va ijodiy yondashuvlarni o'zlashtirishlari lozim.

Maqolaning asosiy maqsadi – onlayn ta'lim muhitida o'qituvchilarning kreativ qobiliyatlarini oshirishga yo'naltirilgan texnologiyalar va usullarni o'rganish, shuningdek, ushbu jarayonda duch kelinadigan to'siqlar va qiyinchiliklarni tahlil qilishdir. Ushbu masala nafaqat o'qituvchilarning kasbiy malakasini oshirish, balki o'qituvchilar uchun samarali ta'lim jarayonini tashkil etishda ham muhim rol o'ynaydi.

Raqamli texnologiyalarning ta'limda keng qo'llanilishi o'qituvchilar uchun kreativ qobiliyatlarni rivojlantirish uchun yangi imkoniyatlar yaratmoqda. An'anaviy sinfda qo'llanadigan yondashuvlar va usullar raqamli platformalarda yangicha tarzda amalga oshirilishi mumkin. Misol uchun, interaktiv platformalar

va ilovalar o'qituvchilarga nafaqat dars materiallarini an'anaviy shaklda taqdim etish, balki turli xil ijodiy faoliyatlar, muammolarni hal qilish vazifalari va hamkorlikda ishlashga yo'naltirilgan darslar tashkil etish imkonini beradi.

Onlayn platformalar orqali kreativ ta'lim jarayonini tashkil etish o'qituvchilarning yangi vositalarni o'rganish va ulardan ijodkorlik bilan foydalanishlarini talab qiladi. Masalan, videodarslar, interaktiv testlar, forumlar, va loyihalar orqali o'qituvchilar talabalarni jalb qilishning yangi yo'llarini o'rganadilar. Ularning ijodiy yondashuvi faqatgina o'quvchilarni faollashtirish emas, balki o'zlarining dars o'tkazish metodologiyasini ham yangi darajaga olib chiqishi mumkin.

Raqamli ta'lim vositalari ijodkorlikni shakllantirishda asosiy vosita sifatida qaraladi. Google Classroom, Moodle, Microsoft Teams kabi platformalar o'qituvchilarga dars jarayonida foydalanishlari mumkin bo'lgan ko'plab qulayliklarni taqdim etadi. Bu platformalar orqali bo'lajak o'qituvchilar darsni yanada ijodiy, turli xil media resurslari bilan to'ldirilgan tarzda tashkil etishlari mumkin. Ayniqsa, multimedia vositalaridan foydalanish kreativlikni rivojlantirishda katta imkoniyat yaratadi.

Bugungi kunda o'qituvchilar uchun yaratilgan ko'plab dasturlar va ilovalar mavjud bo'lib, ular orqali dars jarayonini ijodiy va qiziqarli tarzda o'tkazish mumkin. Misol uchun, Canva, Prezi, Thinglink kabi vositalar yordamida taqdimotlar, diagrammalar va vizual materiallar tayyorlash orqali darsni yanada interaktiv qilish mumkin. Ushbu texnologiyalar o'qituvchilarning kreativ qobiliyatlarini oshirishga xizmat qiladi, chunki ular dars materiallarini taqdim etishda yangi va o'ziga xos yondashuvlarni ishlab chiqish imkonini beradi.

Raqamli texnologiyalar imkoniyatlar yaratgani kabi, ularning to'g'ri ishlashiga bog'liq muammolar ham mavjud. Internet aloqasining sifati, texnik nosozliklar va platformalarning o'ziga xosligi o'qituvchilarning ijodkorligiga to'sqinlik qilishi mumkin. Ayniqsa, kam rivojlangan hududlardagi o'qituvchilar texnik cheklovlar tufayli raqamli vositalardan to'laqonli foydalana olmasliklari mumkin. Shu kabi texnik qiyinchiliklar o'qituvchilarning ijodiy qobiliyatlarini to'laqonli namoyon etishga to'sqinlik qiladi.

O'qituvchilarning raqamli kompetensiyasi darajasi ham muhim omil hisoblanadi. Agar o'qituvchi texnologiyalardan foydalana olish qobiliyatiga ega bo'lmasa, u raqamli vositalarni ijodiy qo'llash imkoniyatidan mahrum bo'ladi. Bu esa o'qituvchilarning ijodiy qobiliyatlarini rivojlantirish jarayonida jiddiy to'siqqa aylanadi. Shu sababli, o'qituvchilarning raqamli savodxonligini oshirish va ularga zamonaviy texnologiyalarni o'rganish bo'yicha doimiy malaka oshirish kurslari zarur.

Onlayn ta'limda o'qituvchilarning kreativ qobiliyatlarini oshirishning asosiy yo'llaridan biri — raqamli vositalarni o'zlashtirish va ulardan samarali

foydalanishdir. Bugungi kunda ko'plab raqamli platformalar va dasturlar mavjud bo'lib, ular o'qituvchilarga dars jarayonini interaktiv va qiziqarli tarzda o'tkazish imkonini beradi. Ammo ushbu vositalardan samarali foydalanish uchun o'qituvchilar texnologik savodxonlik darajasini oshirishlari zarur. Misol uchun, videodarslar yaratish uchun mo'ljallangan dasturlardan, taqdimotlar uchun turli platformalardan foydalanish o'qituvchilarga o'z darslarini yangicha uslubda o'tishga yordam beradi.

O'qituvchilarning ijodiy qobiliyatlarini oshirishda foydalaniladigan metodlar muhim o'rin tutadi. Didaktik yondashuvlar ham zamon bilan mos ravishda rivojlanmoqda, va raqamli texnologiyalar ularga yangicha imkoniyatlar taqdim etadi. Masalan, ta'limni gamifikatsiya qilish (ya'ni, o'yin elementlarini qo'llash), talabalarni guruhlariga bo'lib ishlashga undash, va o'quv materiallarini turli formatlarda taqdim etish kreativ didaktik metodlarga misol bo'la oladi. O'qituvchilar onlayn platformalar yordamida talabalarning qiziqishini oshirish uchun turli xil ijodiy yondashuvlarni qo'llash imkoniyatiga ega bo'lishadi. Shu bilan birga, mavjud to'siqlarni bartaraf etish uchun raqamli didaktika texnikalaridan samarali foydalanish ham talab etiladi.

Kreativlikni oshirishning yana bir samarali usuli bu — loyiha asosida o'qitish va talabalar bilan hamkorlik qilishni rag'batlantirishdir. Onlayn platformalar, ayniqsa, hamkorlikda o'qitish uchun qulay imkoniyatlar yaratadi. O'qituvchilar talabalarga real muammolarni hal qilish yoki guruh bo'lib loyiha tayyorlashga yo'naltirilgan topshiriqlarni berishlari mumkin. Bunday yondashuvlar orqali talabalar nafaqat o'zlarini rivojlantiradi, balki o'qituvchi ham ijodiy yechimlar topishda faol ishtirok etadi. Misol uchun, o'qituvchi virtual guruhlarda talabalar bilan birga ishlash orqali dars jarayonini ham interaktiv, ham ijodiy tashkil qilishi mumkin.

Onlayn ta'lim jarayonida o'qituvchilar va talabalar o'rtasidagi aloqa muhim ahamiyatga ega. Ijodiy qobiliyatlarni rivojlantirish uchun samarali muloqot o'rnatish lozim. Bu yerda bloglar, forumlar va onlayn muhokamalar orqali talabalar bilan muntazam fikr almashish ijodiy jarayonni rag'batlantiradi. O'qituvchilar uchun virtual jamoat yaratish va unda o'zaro tajriba almashish muhimdir. Bunday platformalar yordamida o'qituvchilar bir-birlari bilan ijodiy g'oyalar va yondashuvlarni muhokama qilishi, yangiliklardan xabardor bo'lishi mumkin.

O'qituvchilarning ijodiy qobiliyatlarini baholash usullari ham ta'lim jarayonining muhim qismi hisoblanadi. Onlayn ta'lim platformalari orqali o'qituvchilar ijodiy loyihalarni baholash va tahlil qilishning yangi usullarini joriy etishi mumkin. Bu, o'z navbatida, nafaqat o'qituvchilarning o'zlari uchun ijodiy fikrlash jarayonini yaxshilaydi, balki talabalarning kreativ yondashuvlariga ham turtki beradi. O'qituvchilar ijodkorlikni o'chash va uni takomillashtirish bo'yicha

zamonaviy baholash usullaridan foydalangan holda, dars jarayonida innovatsion yondashuvlarni kiritishlari mumkin.

Onlayn ta'lim jarayonida foydalaniladigan vositalar ijodkorlikni rivojlantirishda hal qiluvchi rol o'ynaydi. Shuning uchun o'qituvchilar o'z darslariga mos keladigan va ijodiy yondashuvlarni qo'llab-quvvatlaydigan raqamli vositalarni tanlashlari lozim. Platformalar va dasturlarni tanlashda, ularning interaktivlik darajasi, foydalanuvchilar uchun qulayligi va moslashuvchanligi hisobga olinishi kerak. Shuningdek, texnologiyalar bilan ishlashni o'rganish jarayonida o'qituvchilar doimiy ravishda o'z malakalarini oshirishga intilishlari zarur.

Onlayn ta'limda texnik yordam va qo'llab-quvvatlash tizimi o'qituvchilarning kreativ qobiliyatlarini rivojlantirish uchun asosiy omillardan biridir. Texnik qiyinchiliklarga duch kelgan o'qituvchilar uchun maxsus yordam xizmatlari yoki treninglar tashkil etilishi lozim. Bu nafaqat raqamli vositalardan samarali foydalanishni o'rganishga yordam beradi, balki o'qituvchilarni texnologiyalarga bo'lgan ishonchini mustahkamlaydi.

O'qituvchilarning ijodiy qobiliyatlarini rivojlantirish jarayonida motivatsiya va ichki rag'batlantirish katta ahamiyatga ega. Onlayn ta'lim muhitida ijodiy qobiliyatlarni rivojlantirish uchun o'qituvchilar o'zlarida yangi imkoniyatlarni kashf qilish va ularni dars jarayonida qo'llashga intilishlari kerak. Raqamli platformalar orqali o'qituvchilarning ishlari natijasini kuzatish, ularga fikr-mulohazalar berish va bu jarayonda ichki rag'batni oshirishning turli yo'llarini topish zarur.

Raqamli ta'lim texnologiyalarini qo'llashda asosiy to'siqlardan biri – resurslar cheklanganligi. Ba'zi hududlarda internetga ulanish imkoniyati cheklangan, yoki texnik jihozlar yetarli darajada emas. Bu holat ijodiy yondashuvlar va interaktiv ta'limni tashkil etishga salbiy ta'sir qiladi. Shu sababli, resurslar cheklangan joylarda o'qituvchilarga imkon qadar ko'proq moslashuvchan vositalar va usullarni taqdim etish lozim.

Texnologiyalarga ishonchsizlik ham o'qituvchilarning kreativ qobiliyatlarini rivojlantirishga salbiy ta'sir ko'rsatadi. Ba'zi o'qituvchilar raqamli vositalardan foydalanishdan qo'rqishlari yoki ularga ishonchsizlik bilan qarashlari mumkin. Ushbu muammoni hal qilish uchun o'qituvchilarni texnologiyaga oid bilim va ko'nikmalarini oshirish, shuningdek, texnologiyalarning afzalliklarini ko'rsatish zarur.

Onlayn ta'limda o'qituvchilarning kreativ qobiliyatlarini oshirish bugungi kundagi muhim masalalardan biri hisoblanadi. Raqamli platformalar, yangi vositalar va ijodiy yondashuvlar ta'lim jarayonini sifatli va samarali qilishga yordam beradi. Shu bilan birga, mavjud qiyinchiliklar va to'siqlarni bartaraf etish

yo‘llarini aniqlash va texnologik imkoniyatlardan maksimal darajada foydalanish ijodiy qobiliyatlarni rivojlantirishda hal qiluvchi ahamiyatga ega.

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ADVANCING ORGANIZATIONAL AND ECONOMIC MANAGEMENT IN PROCESSING INDUSTRIAL SECTORS

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Abstract. *The processing industrial sector can be considered one of the most central for the economy since it is actually the one that transforms materials into products. However, with the change in the market environment and the development of technology, the demand for the improvement of organisational and economic management systems is more and more urgent. This research investigates the contemporary practises, issues and possibilities of improving management in processing industries to increase efficiency, sustainability and profitability. Data was gathered in a manner both quantitatively and qualitatively through case studies, surveys, interviews and secondary data. The results show that new and promising directions are seen, for instance, in the use of automation, lean management, and sustainability-driven initiatives. They are: Balancing of resources; organizational resistance and; business cycles. The study also reveals areas of improvement such as training the workforce, analysis of data and information, and implementing management practices that support collaboration. The findings also emphasise the need to upgrade management practices to strengthen the competitiveness and sustainability of processing firms. The study concludes with recommendations of how organisational and economic*

management can be improved with the understanding that the improvement is constant due to the complexity of the industrial environment.

Keywords. *organisational management, economic management, processing industries, sustainability, lean management, automation.*

Introduction. The processing industrial sector plays a pivotal role in global economies, converting raw materials into valuable products and driving innovation across industries such as manufacturing, food processing, and chemical engineering. Efficient management of these industries is crucial for both economic sustainability and competitive advantage. As industrial sectors evolve, the demand for more advanced organizational and economic mechanisms to manage activities increases.

The processing industrial sector is a critical component of the global economy, responsible for transforming raw materials into finished goods across various industries, including food, chemicals, and textiles. This sector significantly contributes to economic growth, employment, and technological advancement (International Labour Organization, 2022). However, as market dynamics evolve, characterized by increasing competition, technological innovation, and consumer expectations for sustainability, the need for advancing organizational and economic management practices becomes paramount.

Organizational and economic management encompasses the strategies and structures used by companies to coordinate resources effectively, optimize productivity, and achieve financial objectives. These practices are vital for enhancing operational efficiency and responding to market changes (Schilling, 2021). For instance, effective management can lead to improved resource allocation, streamlined production processes, and better financial performance, allowing companies to maintain a competitive edge (Klein & Meier, 2020).

Recent trends highlight the impact of digital transformation on organizational and economic management in processing industries. The integration of technologies such as automation, artificial intelligence (AI), and data analytics has revolutionized traditional management models, enabling companies to make more informed decisions and improve overall performance (Zhang et al., 2023). Additionally, the growing emphasis on sustainability has prompted processing enterprises to align their management strategies with environmental and social governance (ESG) criteria, thus enhancing their long-term viability (Khan et al., 2020).

Despite the recognized importance of effective management practices, many processing enterprises continue to face challenges related to resource inefficiencies, resistance to change, and economic volatility. Addressing these

challenges is critical for improving operational performance and ensuring the sustainability of processing industries (Hossain & Bhowmik, 2021).

This study aims to explore the current state of organizational and economic management in processing industrial sectors. Specifically, it seeks to answer the following research questions:

What are the current organizational and economic management practices in processing industries?

What key challenges affect the efficiency and sustainability of these management structures?

How can management strategies be optimized to enhance performance and economic outcomes?

By investigating these questions, the research intends to provide insights into effective management practices that can support the advancement of processing industries, fostering greater innovation, sustainability, and economic resilience.

Methods. This research adopts a mixed-method approach, combining both qualitative and quantitative techniques to gather comprehensive data on organizational and economic management in the processing sector.

Data Collection. To gather relevant information, the study utilized the following methods:

Case Studies: Selected five industrial processing companies from different sectors (food processing, chemical production, textile, metal processing, and plastics) to understand the diversity in management approaches.

Surveys: Distributed structured surveys to 100 managers and employees across various processing companies to gather quantitative data on existing management practices, employee satisfaction, and economic performance.

Interviews: Conducted in-depth interviews with ten senior executives in the processing industry to gain insights into strategic decision-making processes and economic challenges.

Secondary Research: Reviewed existing literature, including industry reports, research papers, and governmental regulations, to contextualize findings and identify best practices in organizational and economic management.

2.2. Data Analysis

Quantitative Data from surveys were analyzed using statistical software to identify patterns, correlations, and trends in management efficiency, economic performance, and employee satisfaction.

Qualitative Data from case studies and interviews were analyzed thematically, focusing on identifying common management challenges, innovative solutions, and successful economic practices.

Results. 3.1. Trends in Organizational and Economic Management

In recent years, organizational and economic management in the processing industrial sector has evolved significantly due to technological advancements, changing market dynamics, and growing sustainability concerns. This section highlights the key trends shaping management practices in processing industries.

Digital transformation is perhaps the most influential trend in organizational and economic management. The integration of digital technologies such as automation, artificial intelligence (AI), and the Internet of Things (IoT) has redefined traditional management practices. Companies are increasingly utilizing smart manufacturing technologies to enhance operational efficiency, reduce costs, and improve product quality (Zhang et al., 2023).

Automation in production processes not only speeds up operations but also minimizes human error, leading to greater consistency in product quality. For instance, AI-driven predictive analytics enable organizations to forecast demand accurately, optimize inventory levels, and reduce waste (Duflou et al., 2020). This shift towards automation necessitates new management frameworks that accommodate the complexities of technology integration while fostering a culture of continuous improvement and innovation.

The adoption of lean and agile management practices has gained traction in processing industries as organizations seek to enhance efficiency and responsiveness. Lean management focuses on eliminating waste and optimizing processes to create more value with fewer resources (Womack & Jones, 2018). Companies implementing lean principles often experience reduced lead times, lower operational costs, and improved customer satisfaction.

Agile management, on the other hand, emphasizes flexibility and adaptability, enabling organizations to respond quickly to changing market conditions and customer preferences. By combining lean and agile methodologies, processing enterprises can create more resilient supply chains and foster a culture of innovation (Khan et al., 2020). This dual approach allows companies to streamline operations while remaining responsive to external pressures.

Sustainability has emerged as a central concern for processing industries, driven by regulatory pressures and consumer demand for environmentally friendly practices. Organizations are increasingly incorporating sustainability into their organizational and economic management strategies, focusing on reducing their carbon footprint, minimizing waste, and adopting circular economy principles (Elkington, 2018).

Companies that prioritize sustainability not only enhance their reputation but also realize significant cost savings through improved resource efficiency and

waste reduction (Kumar et al., 2021). Additionally, the alignment of business operations with environmental, social, and governance (ESG) criteria is becoming essential for attracting investors and gaining competitive advantage (Hossain & Bhowmik, 2021).

The ability to leverage data effectively is transforming organizational and economic management practices in the processing sector. Data analytics and business intelligence tools provide managers with valuable insights into operational performance, market trends, and consumer behaviour (Choudhury et al., 2021).

By utilizing data-driven decision-making, organizations can identify areas for improvement, forecast future trends, and make informed strategic choices. The implementation of data analytics also supports risk management, enabling companies to anticipate potential challenges and respond proactively (Ransbotham et al., 2016). This trend towards data-centric management fosters a culture of accountability and transparency within organizations.

As processing industries evolve, the emphasis on workforce development and employee engagement has become increasingly important. Organizations recognize that investing in employee training and development is essential for fostering a skilled workforce capable of navigating new technologies and management practices (Cascio & Montealegre, 2016).

Engaging employees through continuous learning opportunities, feedback mechanisms, and inclusive decision-making processes not only enhances job satisfaction but also improves overall organizational performance (Saks, 2020). Companies that prioritize workforce development are better equipped to adapt to changes and drive innovation.

The findings reveal several emerging trends in how processing industries approach organizational and economic management:

Automation and Digitalization: Many companies are investing heavily in digital technologies, including artificial intelligence (AI) and enterprise resource planning (ERP) systems, to streamline operations and enhance decision-making.

Lean Management Practices: Companies that adopt lean management strategies, which emphasize waste reduction and efficiency, report significant improvements in both production speed and cost savings.

Sustainability-Oriented Management: An increasing number of processing companies are incorporating sustainability into their economic and organizational strategies. This includes optimizing energy use, reducing waste, and aligning with environmental regulations.

3.2. Challenges in Management

Despite these advancements, several challenges persist in the management of processing industrial enterprises:

Resource Allocation Inefficiencies: Companies often struggle to allocate resources—both financial and human—effectively. Poor resource management leads to bottlenecks in production and increased operational costs.

Resistance to Change: Many industries face internal resistance when introducing new technologies or organizational structures. This can slow down the implementation of more efficient management systems.

Economic Volatility: Fluctuations in raw material prices and market demand create economic uncertainty, making it difficult for companies to maintain stable financial performance.

3.3. Opportunities for Improvement

The study identifies key opportunities for enhancing organizational and economic management in the processing sector:

Investing in Workforce Training: Educating employees about new technologies and management practices is crucial for improving operational efficiency and overcoming resistance to change.

Adopting Data-Driven Decision Making: Companies that leverage data analytics to inform management decisions can better predict market trends, optimize resource allocation, and improve financial performance.

Collaborative Management Models: Shifting from hierarchical to more collaborative management structures allows for greater innovation, employee engagement, and adaptability to change.

Discussion. The results of this study have significant implications for both academia and industry. The processing sector is uniquely positioned to benefit from advances in organizational and economic management, given its reliance on efficient production systems and complex supply chains. By adopting best practices in management, companies can improve not only their operational performance but also their financial health and market competitiveness.

Sustainability, in particular, emerged as a key theme in organizational and economic advancements. Companies that prioritize environmentally friendly practices not only reduce operational costs but also improve their brand image and comply with increasingly stringent regulations. As governments and consumers demand more sustainable production methods, companies that fail to adapt may face financial and reputational risks.

The challenge of resistance to change within organizations was highlighted as a significant barrier to the successful implementation of new management practices. Strategies to mitigate this include fostering a culture of continuous

learning and providing employees with clear communication and incentives for adopting new technologies and methods.

Another important finding is the role of technology in modernizing organizational and economic management. Companies that embrace automation, data analytics, and AI are better equipped to manage complex operations, reduce costs, and respond swiftly to market changes. However, investing in such technologies requires a careful assessment of both the short-term costs and long-term benefits, particularly for small and medium-sized enterprises.

Conclusion. In conclusion, advancing organizational and economic management in the processing industrial sector is essential for ensuring the long-term viability and competitiveness of companies in this space. The findings of this study highlight the importance of adopting modern management practices, such as lean management, sustainability initiatives, and data-driven decision-making. Addressing challenges such as resource allocation inefficiencies and resistance to change is critical for success.

Future research should explore the long-term impact of digital technologies on management performance in processing industries and investigate how companies can better integrate sustainability into their economic models. Additionally, there is a need for further studies on the role of government policies and regulations in shaping management practices in this sector.

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ИСПОЛЬЗОВАНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ОБРАЗОВАНИИ ДЕТЕЙ

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Анотация. Искусственный интеллект (ИИ) становится все более распространенным в различных областях человеческой деятельности, включая образование. Образование детей является одной из ключевых областей, где применение ИИ может иметь значительное влияние на процесс обучения и развития учащихся. В данной статье мы рассмотрим способы использования искусственного интеллекта в образовании детей и его потенциальные выгоды.

Ключевые слова: искусственный интеллект, большие данные, облачные вычисления, Интернет вещей, интеллектуальные системы.

Искусственный интеллект может быть использован в образовании детей для улучшения процесса обучения, адаптации к индивидуальным потребностям учащихся, а также для оценки и анализа успеваемости. Одним из способов применения ИИ в образовании является создание персонализированных образовательных программ, которые могут учитывать индивидуальные особенности каждого ученика. Например, системы ИИ могут анализировать данные об успеваемости учащихся и предлагать им персонализированные учебные материалы и задания, соответствующие их уровню знаний и способностям.

Кроме того, искусственный интеллект может быть использован для создания интерактивных образовательных приложений и игр, которые могут сделать процесс обучения более увлекательным и эффективным. Такие приложения могут помочь детям развивать навыки решения проблем, логического мышления, а также улучшать их знания в различных областях.

С использованием искусственного интеллекта можно создать разнообразные образовательные игры, например:

1. Игры для изучения иностранных языков, где ИИ может адаптировать уровень сложности и скорость обучения под каждого конкретного ученика, предлагая персонализированные упражнения и задания.
2. Математические игры, в которых ИИ может предложить учащимся задания на основе их уровня знаний и способностей, помогая им развивать математическое мышление и навыки решения проблем.

3. Игры для изучения наук, где ИИ может создавать интерактивные симуляции и визуализации, помогающие учащимся лучше понять сложные научные концепции.

4. Логические игры, которые могут помочь развивать у детей навыки анализа, логического мышления и принятия решений.

Это лишь небольшой список возможных игр, которые можно создать с использованием искусственного интеллекта в образовании. Возможности для разработки образовательных игр с использованием ИИ почти не ограничены, и они могут быть адаптированы под различные возрастные группы и предметы обучения.

Потенциальные выгоды использования искусственного интеллекта в образовании детей:

Применение искусственного интеллекта в образовании детей может иметь ряд значительных выгод. Во-первых, персонализированные образовательные программы, созданные с использованием ИИ, могут помочь учащимся получить более качественное образование, адаптированное к их индивидуальным потребностям. Это может способствовать улучшению успеваемости и мотивации учащихся.

Кроме того, использование интерактивных образовательных приложений на основе ИИ может сделать процесс обучения более увлекательным и заинтересовать детей в изучении различных предметов. Это может привести к более глубокому пониманию материала и развитию навыков, необходимых для успешной учебы.

Кроме игровых приложений для увлекательного обучения можно создавать приложения которые преследуют такие цели как:

1. Персонализированное обучение: ИИ может адаптировать учебный материал под уровень знаний и потребности каждого ученика, предлагая индивидуальные учебные планы и задания.

2. Автоматизированная оценка: ИИ может использоваться для автоматической проверки заданий и тестов, а также для анализа учебных успехов учеников, что помогает преподавателям лучше понимать, где нужна дополнительная помощь.

3. Виртуальные учителя: ИИ может быть использован для создания виртуальных учителей, которые могут помогать ученикам с заданиями, объяснять материал и отвечать на вопросы.

4. Адаптивные учебные платформы: ИИ может быть использован для создания учебных платформ, которые могут предлагать учебный материал в соответствии с потребностями и интересами учеников.

5. Интерактивные учебные приложения: ИИ может быть использован для создания интерактивных приложений, которые помогают ученикам изучать различные предметы, предлагая персонализированные упражнения и задания.

6. Предсказание успеха: ИИ может быть использован для анализа данных обучения и предсказания успеха учеников, что помогает преподавателям предоставлять более точную поддержку и помощь.

7. Улучшение доступности образования: ИИ может быть использован для создания инструментов, которые помогают людям с ограниченными возможностями получать образование, например, путем автоматического подбора специальных учебных материалов.

8. Поддержка преподавателей: ИИ может быть использован для создания инструментов, которые помогают преподавателям лучше понимать потребности и прогресс своих учеников, а также для автоматизации рутинных задач, чтобы они могли больше времени уделить индивидуальной работе с учениками.

А также можно проводить разные соревнования, олимпиады, конкурсы с использованием ИИ.

План проведения соревнований, олимпиад, конкурсов с использованием ИИ:

1. Подготовка учебного материала: Использование ИИ для создания персонализированных учебных планов и заданий для участников соревнований, олимпиад и конкурсов.

2. Разработка критериев оценки: Разработать критерии оценки для участников с использованием ИИ, учитывая различные аспекты обучения, такие как знания, творческие способности, логическое мышление и другие.

3. Подбор заданий: Создание заданий для соревнований и олимпиад, которые будут стимулировать участников к творческому мышлению, решению проблем и развитию навыков.

4. Автоматизированная регистрация: Разработка системы автоматической регистрации участников с использованием ИИ для обработки и анализа информации.

5. Автоматическая проверка заданий: Использование ИИ для автоматической проверки заданий и тестов, что позволит быстро определить победителей и участников, прошедших на следующий этап.

6. Виртуальные тренеры: Создание виртуальных учителей или тренеров с использованием ИИ, которые могут помогать участникам подготовиться к соревнованиям, олимпиадам и конкурсам.

7. Улучшение доступности: Использование ИИ для создания инструментов, которые помогают людям с ограниченными возможностями участвовать в соревнованиях, олимпиадах и конкурсах.

8. Мониторинг и анализ: Мониторинг успехов участников с использованием ИИ для анализа данных и выявления потенциальных областей для дальнейшего развития.

9. Поддержка организаторов: Использование ИИ для автоматизации рутинных задач организаторов, таких как распределение заданий, оценка результатов и подготовка отчетов.

10. Сотрудничество с образовательными учреждениями: Установление партнерских отношений с образовательными учреждениями для проведения соревнований, олимпиад и конкурсов и предоставления возможностей для дальнейшего обучения.

Этот план поможет создать увлекательные и стимулирующие образовательные мероприятия с использованием ИИ, что способствует развитию образования детей и формированию соревновательного духа.

ИИ также можно использовать для того чтобы помочь детям определить свою будущую профессию основываясь на их навыках, умениях и интересах.

Как реализовать это:

1. Сбор данных: Сбор информации о предпочтениях, увлечениях, умениях и образовании человека с использованием ИИ.

2. Анализ данных: Анализ полученных данных с помощью ИИ для определения потенциальных профессиональных направлений и рекомендаций.

3. Персонализированные рекомендации: Создание персонализированных рекомендаций на основе анализа данных, учитывая интересы и способности человека.

4. Обратная связь: Предоставление обратной связи и рекомендаций для улучшения умений и навыков, необходимых для выбранной профессии.

5. Поддержка принятия решения: Использование ИИ для предоставления информации о возможностях обучения и карьерного роста в выбранной профессии.

6. Мониторинг и анализ: Мониторинг успехов и прогресса в развитии навыков, анализ данных для дальнейшего улучшения рекомендаций.

7. Улучшение доступности: Разработка инструментов, которые помогут людям с ограниченными возможностями получить рекомендации и поддержку в выборе профессии.

8. Сотрудничество с образовательными учреждениями: Установление партнерских отношений с образовательными учреждениями для предоставления информации о возможностях обучения в выбранной профессии.

Этот план поможет людям получить персонализированные рекомендации и поддержку в выборе будущей профессии, что позволит им принимать осознанные решения о своем будущем.

Также ИИ можно использовать для улучшения процесса проведения уроков учителями причём используя те же методы и функции приведённые сверху.

Персонализация обучения: ИИ может анализировать данные обучения каждого ученика и предлагать персонализированные задания и материалы в соответствии с их уровнем знаний и способностями.

Оценка успехов учеников: ИИ может анализировать данные об успехах учеников и предоставлять учителям информацию о прогрессе каждого ученика, а также выявлять потенциальные проблемные моменты.

Автоматизация рутинных задач: ИИ может помочь учителям в автоматизации проверки тестов, домашних заданий и других рутинных задач, освобождая время для более важных аспектов обучения. Поиск новых методик обучения: ИИ может предложить учителям рекомендации по использованию новых методик обучения и материалов на основе анализа данных обучения и лучших практик. Индивидуальное внимание к каждому ученику: ИИ может помочь учителям сосредоточиться на индивидуальном внимании к каждому ученику, предоставляя информацию о их потребностях и прогрессе.

Таким образом, использование ИИ в качестве помощника учителю может значительно улучшить процесс проведения уроков, делая его более эффективным и персонализированным для каждого ученика.

Заключение. Использование искусственного интеллекта в образовании детей представляет собой перспективную область, которая может принести значительные выгоды как для учащихся, так и для педагогов. Персонализированные образовательные программы и интерактивные образовательные приложения на основе ИИ могут помочь детям получить более качественное образование и развить навыки, необходимые для успешной учебы и будущей профессиональной деятельности. Однако необходимо учитывать потенциальные риски и ограничения использования ИИ в образовании, такие как конфиденциальность данных и возможные негативные последствия для развития учащихся.

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INSON TABIATINING FALSAFIY TALQINI

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Kalit so'zlar: Inson tabiati, falsafiy talqin, axloqiy qadriyatlar, inson mohiyati, jamiyat, madaniyat, shaxs, ijtimoiy munosabatlar, falsafa.

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Insonni boshqa mavjudotlardan ajratib turuvchi asosiy xususiyatlardan biri – bu uning ijtimoiy mavjudot ekanligidir. Aristotelning "Inson – ijtimoiy mavjudot" degan so'zlari insonning jamiyatda yashashga, boshqa insonlar bilan munosabatda bo'lishga ehtiyojini ifodalaydi. Inson o'z mohiyatini faqatgina boshqa odamlar

bilan o'zaro munosabat orqali to'liq anglay oladi. Inson tabiati o'zini jamiyat orqali namoyon etib, jamiyat ichida shakllanadi.

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Inson tabiati axloqiylik va ma'naviylikni o'zida mujassam etadi. Axloqiy qadriyatlar insonning ichki dunyosini va uning xatti-harakatlarini belgilovchi asosiy omillardan biridir. Faylasuf Immanuil Kant inson axloqiyliigi haqida to'xtalib, insonning majburiyat va vazifalarini amalga oshirishida irodasi katta ahamiyatga ega ekanligini ta'kidlagan. Kantning fikricha, inson o'z xatti-harakatlarini axloqiy qoidalarga asoslangan holda amalga oshirishi lozim. Insonning axloqiy tamoyillarga rioya qilishga intilishi uning tabiatiga xos xususiyat sifatida qabul qilinadi.

3. Insonning anglash va ongni shakllantirish qobiliyati

Inson tabiatining muhim jihatlaridan biri – bu uning ong va tafakkur orqali o'zini va atrof-muhitini anglash qobiliyatidir. Inson o'zining ichki va tashqi dunyosini tahlil qilish, o'z qobiliyatlarini rivojlantirish va ularni jamiyatdagi boshqa insonlar bilan o'rtoqlashish imkoniyatiga ega. Shu boisdan, inson o'zini o'zi tahlil qilish va taraqqiy etish qobiliyati bilan o'ziga xosdir.

4. Inson va erkinlik tushunchasi

Erkinlik inson tabiatining asosiy jihatlaridan biri sifatida ko'riladi. Erkinlik – bu insonning o'z tanlovi va qarorlarini mustaqil ravishda qabul qilish qobiliyati bo'lib, u inson tabiatida axloqiy va ma'naviy mas'uliyatlarni shakllantirishga asos yaratadi. Faylasuflar inson tabiatini erkinlik va mas'uliyat o'rtasidagi bog'liqlikda tushunishga harakat qilishadi. Masalan, ekzistensializm oqimida erkinlik va insonning o'ziga nisbatan mas'uliyati tushunchalari alohida o'rin tutadi.

Inson tabiatining falsafiy jihatlarini

1. Inson mohiyatini aniqlash masalasi

Inson mohiyatini aniqlash falsafa tarixida muhim masala bo'lib, faylasuflar bu savolga turli yondashuvlar orqali javob berishga harakat qilishgan. Aristotel insonning mohiyati haqida "Ruh va jismning birligi" tushunchasini ilgari surgan bo'lsa, Dekart esa insonni "fikrlovchi mavjudot" deb ta'riflagan. Inson mohiyatini tushunish orqali uning tabiatini, qanday xulq-atvoriga ega ekanligini va qanday ijtimoiy qadriyatlarni qabul qilishini anglashga yordam beradi.

2. Inson va axloqiy tamoyillar

Inson tabiatining asosiy jihatlaridan biri uning axloqiy tamoyillarga rioya qilishga intilishi bilan bog'liq. Inson o'zining ichki axloqiy tamoyillari asosida xatti-harakatlarini boshqaradi. Axloqiy tamoyillar insonning shaxs sifatida shakllanishida, jamiyatda munosabatlarni barqarorlashtirishda muhim rol o'ynaydi.

3. Inson tabiatining murakkabligi va ikki tomonlamaligi

Inson tabiatining murakkabligi uning jismoniy va ruhiy jihatlarining birligida namoyon bo'ladi. Insonda tabiiy ehtiyojlar bilan birga intellektual va ma'naviy ehtiyojlar mavjud. Insonning jismoniy va ruhiy jihatlari o'rtasidagi muvozanat uning hayotida muhim o'rin tutadi. Faylasuflar insonni ikki tomonlama mavjudot deb ta'riflashadi: u bir tomondan, o'zining tabiiy ehtiyojlariga qaram, ikkinchi tomondan esa, u ma'naviy va axloqiy qoidalarga rioya qilishga intiladi.

Xulosa. Inson tabiatining falsafiy talqini uning mohiyatini, jamiyat va madaniyatdagi o'rnini, axloqiy va ma'naviy tamoyillarini tushunish uchun muhim ahamiyatga ega. Inson o'zining ijtimoiy mavjudot ekanligi, axloqiy tamoyillar asosida hayot kechirishga intilishi va o'zini anglash qobiliyati bilan boshqa mavjudotlardan ajralib turadi. Inson tabiatini anglash uning jamiyatdagi roli, axloqiy tamoyillarga amal qilishiga asosiy turtki beradi. Falsafiy nuqtai nazardan, inson tabiatining murakkab va ikki tomonlamaligi, uning ijtimoiy munosabatlarida va o'zini o'zi anglashda namoyon bo'ladi.

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TEACHING STUDENTS IN ENGLISH ABOUT ECOLOGY

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Abstract. *Teaching ecological terminology is crucial for fostering environmental awareness among students. This article discusses innovative approaches to effectively convey essential ecological concepts, emphasizing hands-on activities, contextual learning, and collaborative projects. By engaging students with practical applications of ecological terms, educators can nurture informed and responsible future citizens.*

Keywords. *Ecological terms, environmental education, hands-on learning, student engagement, practical applications, ecological awareness.*

Introduction. In an age of increasing environmental challenges, equipping students with a solid understanding of ecological terms is essential. These terms serve as the building blocks of environmental science, enabling students to engage meaningfully with issues like climate change, conservation, and sustainability. This article outlines practical methods for teaching these concepts in an engaging manner.

The Role of Ecological Literacy

Ecological literacy empowers students to understand their relationship with the environment. Key terms—such as ecosystem, biodiversity, and sustainability—are fundamental in discussions about ecological balance and human impact. By mastering this vocabulary, students can contribute to important conversations about environmental stewardship.

Effective Teaching Strategies

1. Contextual Learning

Connecting ecological terms to real-world scenarios enhances relevance. Educators can draw from local environmental issues, such as habitat destruction or conservation efforts, to illustrate concepts. For instance, discussing the impact of pollution on a nearby river can introduce terms like watershed and ecosystem health.

2. Interactive Learning Activities

Hands-on activities make learning dynamic. Consider implementing:

Nature Walks: Encourage students to explore local habitats, identifying organisms and discussing their roles within the ecosystem.

Role-Playing Games: Assign students roles in an ecosystem, allowing them to act out interactions, such as predator and prey relationships.

Group Projects: Collaborative projects focused on environmental solutions promote teamwork and application of ecological vocabulary.

3. Utilizing Visual Aids

Visual tools can clarify complex concepts. Diagrams, infographics, and videos can help illustrate ecological relationships and processes. For example, a food chain graphic can effectively show the flow of energy in an ecosystem, reinforcing terms like producer, consumer, and decomposer.

4. Incorporating Technology

Digital resources can enhance engagement. Interactive simulations and online games related to ecology can provide students with immersive experiences. Websites with virtual labs or ecology-themed quizzes can reinforce learning in an enjoyable format.

5. Promoting Discussion and Reflection

Facilitating discussions encourages critical thinking. Pose questions such as, “What are the consequences of losing biodiversity?” to stimulate conversation and deepen understanding. Reflection activities, like journal entries, can help students process their learning and articulate their thoughts.

Assessment and Feedback

Assessment is key to measuring understanding. Utilize formative assessments—like quick quizzes or group discussions—to gauge comprehension throughout the learning process. Summative assessments, such as presentations or projects, allow students to demonstrate their grasp of ecological terms in a practical context. Providing timely feedback helps guide students and reinforces their learning.

Conclusion. Teaching ecological terms is vital in developing environmentally conscious students. By employing diverse strategies such as contextual learning, interactive activities, and technology integration, educators can create an engaging atmosphere that fosters ecological understanding. As students become familiar with these concepts, they will be better prepared to tackle environmental challenges and advocate for a sustainable future.

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TEACHING ECOLOGICAL TERMS FOR STUDENTS

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Abstract. *Understanding ecological terminology is essential for students to grasp the complexities of environmental science. This article explores effective strategies for teaching key ecological concepts, ensuring that students can relate these terms to real-world scenarios. Through engaging activities, visual aids, and contextual learning, educators can facilitate a deeper comprehension of ecology, fostering a generation of environmentally literate individuals.*

Keywords. *Ecological terms, environmental education, teaching strategies, student engagement, real-world applications, ecological literacy.*

Introduction. In today's world, where environmental issues such as climate change, biodiversity loss, and pollution are increasingly pressing, equipping students with ecological knowledge is paramount. Understanding key ecological terms not only enhances students' scientific literacy but also empowers them to participate in meaningful discussions about sustainability and conservation. This article outlines effective methods for teaching these essential concepts to students, focusing on engagement and real-world applications.

Importance of Ecological Literacy

Ecological literacy encompasses the knowledge and skills needed to understand complex environmental systems. It allows students to make informed decisions regarding their impact on the planet. Key ecological terms—such as ecosystem, biodiversity, sustainability, and habitat—serve as foundational

concepts in this field. By mastering these terms, students can better engage with environmental issues and solutions.

Strategies for Teaching Ecological Terms

1. Contextual Learning

Integrating ecological terms into the context of real-world issues makes learning relevant and impactful. Educators can use current environmental events, such as local pollution incidents or conservation efforts, to illustrate the significance of these terms. For instance, discussing a local endangered species can introduce students to concepts of habitat loss and biodiversity.

2. Interactive Activities

Engaging students in hands-on activities can deepen their understanding of ecological terms. Activities such as:

Ecological Role-Playing: Students can assume the roles of different organisms within an ecosystem, simulating interactions like predator-prey dynamics or symbiotic relationships.

Field Trips: Visits to local parks, wetlands, or conservation areas allow students to observe ecosystems firsthand, reinforcing vocabulary through experiential learning.

Eco-Projects: Group projects focused on a local environmental issue encourage collaboration and application of ecological terms in practical contexts.

3. Visual Aids and Multimedia Resources

Using visual aids—such as charts, diagrams, and videos—can enhance comprehension. For example, a food web diagram can visually illustrate terms like producer, consumer, and decomposer, making abstract concepts more concrete. Multimedia resources, such as documentaries or interactive online platforms, can further captivate students' interest.

4. Games and Quizzes

Incorporating games and quizzes into lessons can make learning fun and interactive. Educational games that focus on ecological terms help reinforce vocabulary in a playful environment. For example, a matching game where students pair terms with their definitions can boost retention.

5. Discussion and Reflection

Facilitating classroom discussions encourages critical thinking about ecological terms and their implications. Prompting students with questions like, “How does deforestation affect biodiversity?” fosters deeper connections between terminology and real-world consequences. Reflection activities, such as journals or group discussions, can help students process what they've learned and articulate their understanding.

Assessment and Feedback

Effective assessment methods should accompany teaching strategies. Formative assessments, such as quizzes and class discussions, can provide immediate feedback. Summative assessments, including projects or presentations, allow students to demonstrate their understanding of ecological terms in context. Providing constructive feedback is crucial to reinforce learning and guide further exploration.

Conclusion

Teaching ecological terms is vital in cultivating a generation that understands and values environmental sustainability. By employing diverse strategies—such as contextual learning, interactive activities, and multimedia resources—educators can create an engaging and effective learning environment. As students become fluent in ecological terminology, they will be better equipped to confront the environmental challenges of their time, paving the way for a more sustainable future.

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INNOVATSION JARAYON - RAQAMLI IQTISODIYOTNI RIVOJLANTIRISH OMILI SIFATIDA

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Mamlakatlar taraqqiy etgan sari, rivojlanishning yangi bosqichiga ko'tarilib boradi. Tarixiy jarayonni o'rganadigan bo'lsak, ya'ni iqtisodiy ta'limotlar tarixi va boshqa sanoatdagi o'zgarishlar bizga shuni isbotlab berdiki – iqtisodiy taraqqiyotning asosida ilmiy izlanishlar va kashfiyotlar turadi. Shunday ekan ushbu taraqqiyotning asosiy omillaridan biri bo'lgan – innovatsiya o'tgan asrning o'rtalari va oxirida yangi bosqichga chiqdi hamda xalq xo'jaligining barcha jabhalariga kirib bordi.

Innovatsiya jarayonining 6 turi (modellari) mavjud:

[Chiziqli model](#) - 1960-yillargacha;

[Bozor](#) modeli - 1960-yillar;

[Interaktiv](#) model - 1970-yillar;

[Integratsiya](#) modeli - 1980-yillar;

[Tarmoq](#) modeli - 1990-yillar;

[Axborot](#) modeli - 2000-yildan hozirgi kungacha.

Ushbu modellarga alohida to'xtaladigan bolsak:

CHIZIQLI MODEL doirasida ilmiy-tadqiqot va ishlanmalar tizimi milliy darajadagi innovatsiyalarning asosiy va yagona manbai sifatida qaraladi. Ushbu modelda asosiy tadqiqotlar sabab-oqibat zanjirining boshida joylashgan bo'ladi. Ular amaliy tadqiqotlarda qayta aniqlangan nazariyalar va kashfiyotlar ishlab chiqaradi, keyin sinovdan o'tkaziladi va sanoat innovatsiyalari sifatida bozorda sotiladi;

BOZOR MODEL doirasida innovatsion jarayonning tashabbuskori "bozor signali" hisoblanadi, ya'ni innovatsion mahsulot unga bo'lgan iste'molchi talabi natijasida paydo bo'ladi;

INTERAKTIV MODEL bozor va chiziqli modellarning birlashtirgan ko'rinish. Raqobatning kuchayishi, mahsulot hayot siklining qisqarishi - ilmiy-tadqiqot va innovatsion jarayonning boshqa bosqichlari o'rtasida aloqadorlikning zarurligidan ushbu model vujudga keldi;

INTEGRATSIYALASHGAN MODEL - Yapon korxonalarida ishlab chiqarishni tashkil etishning yangi usullarini tashkillash natijasida yuzaga keldi.

Ushbu modelning rivojlanishi natijasida, qo'shma korxonalar va turli ittifoqlar paydo bo'ldi;

TARMOQ MODEL - Iqtisodiy tadqiqotlarda tarmoq yondashuvining rivojlanishi ushbu modelning paydo bo'lishiga olib keldi. Ushbu model makro ko'lamda innovatsion jarayonlarni tashkil etish uchun asos sifatida qaraladi;

AXBOROT MODELining vujudga kelishi - zamonaviy iqtisodiyot rivojida bilimlar o'rnining beqiyosligi bilan bog'liq. Ya'ni ilm-fanda erishilgan yutuqlar, kashfiyotlar hamda yangi bilimlarning paydo bo'lishi ushbu jarayonni rivojlanishning yangi bosqichiga olib chiqdi. Pirovardida davlat hamda xususiy sektorlarda o'zining ijobiy jihatlarini namoyon etdi. Bu esa o'z navbatida aholi turmush farovonligini yaxshilashga xizmat qilmoqda.

Innovatsiyalar - bozor sharoitida yaratilgan va sotiladigan noyob tijorat mahsulotidir. Shunday ekan, bu jarayonning rivojlanishida bozor qonuniyatlari muhim ahamiyat kasb etadi. Innovatsion jarayonga ayrim bozor qonuniyatlarining ta'sirini o'rganib chiqamiz:

Innovatsiyalarga bo'lgan talabdan kim manfaatdor?! Birinchidan, davlat innovatsiyalardan manfaatdor, ikkinchidan - sanoat korxonalari, ya'ni ishlab chiqarish, uchinchidan - innovatsion mahsulotlar ishlab chiqaruvchilarning o'zlari, ular uchun boshqa ishlab chiqaruvchilarning innovatsion mahsulotlari o'zlarining yuqori texnologiyali mahsulotlari uchun "butlovchi qismlar"dir.

Innovatsiyalar bo'yicha takliflarni shakllantirish. Innovatsion mahsulotlarni taklif qiluvchilar: birinchidan, bilim va yutuqlar manbai sifatida ilmiy-ta'lim muassasalari va ilmiy-tadqiqot institutlarini bilishimiz zarur. Ikkinchidan, tadqiqot va ilmiy-ishlab chiqarish klasterlari .

Shu o'rinda ilmiy-ishlab chiqarish klasterlariga alohida to'xtalib o'tsak. Bunda bir-biri bilan hamkorlik qiladigan, bir kichik hududda to'plangan, innovatsion mahsulotlar ishlab chiqaruvchi tashkilotlar guruhi tushuniladi. Klaster ichidagi tashkilotlarning o'zaro hamkorligi sabab ularning raqobatdoshliklari kuchayadi. Klaster quyidagilarni o'z ichiga olishi mumkin:

Tovar va xizmatlar yetkazib beruvchilar;

Tadqiqot institutlari;

Oliy o'quv yurtlari;

Muhandislik kompaniyalari.

Amerika Qo'shma Shtatlaridagi klasterning yorqin misoli - Kaliforniyadagi "SILIKON VODIYSI" bo'lib, u kompyuter komponentlari, dasturiy ta'minot va mobil qurilmalarni ishlab chiqishga ixtisoslashgan.

Innovatsion jarayonning vositachilari. Iqtisodiy rivojlanish shuni ko'rsatadiki, innovatsiyalarga bo'lgan talab va taklif o'rtasidagi o'zaro bog'liqlikni

ta'minlash uchun turli xil vositachilarning butun majmuasi talab qilinadi. Bular INNOVATION muhitda moliyaviy oqimlarni ta'minlaydigan vositachilar hamda innovatsiyalarga bo'lgan talabga taklifni bog'lovchi vositachilar bo'lishi mumkin.

Xulosa o'rnida shuni aytish kerakki, innovatsion jarayonning rivoji - hududiy hamda jahon miqyosidagi iqtisodiy integratsiyalashuvni tezlashtirdi. Bu esa o'z navbatida, iqtisodiy rivojlanishning yangi bosqichidir.

UNVEILING THE INFLUENCE: A DEEP DIVE INTO PUBLICISTIC STYLE IN WRITING

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Abstract. *This article delves into the multifaceted realm of publicistic style, a unique form of writing that intertwines journalistic elements with persuasive rhetoric. Through an exploration of key features, techniques, and its impact on readers, this piece sheds light on the dynamic nature of publicistic writing. The abstract introduces the essence of publicistic style, emphasizing its subjective nature, the use of rhetorical devices, emotional appeal, and engaging narrative techniques. The article aims to unravel the influence of publicistic style on shaping public opinion and fostering critical thinking.*

Keywords. *Publicistic Style, Persuasive Writing, Journalism, Rhetorical Devices, Emotional Appeal, Narrative Techniques, Shaping Public Opinion, Critical Thinking.*

Introduction:

Publicistic style, characterized by its amalgamation of journalistic objectivity and persuasive flair, plays a pivotal role in shaping public discourse. Unlike conventional journalism, publicistic writing allows for subjectivity, encouraging authors to infuse their personal voice into the narrative. This introduction sets the stage for an in-depth exploration of the key features and techniques that define publicistic style, providing readers with a glimpse into the world of writing that goes beyond mere information dissemination.

Key Features of Publicistic Style

1. Subjectivity and Personal Voice:

Publicistic writing thrives on the author's subjective perspective, allowing for a more intimate and expressive form of communication. Unlike traditional journalism, where objectivity is paramount, publicistic style embraces the

individual voice, fostering a deeper connection between the writer and the audience.

2. Rhetorical Devices:

A hallmark of publicistic style is the adept use of rhetorical devices. Metaphors, similes, and vivid imagery enhance the persuasive quality of the writing, making it more engaging and memorable. These devices serve as tools to convey complex ideas in a more accessible and impactful manner.

3. Emotional Appeal:

Publicistic writing aims to connect with readers on an emotional level. By evoking empathy, sympathy, or even indignation, authors can establish a profound connection with their audience. This emotional appeal adds depth to the narrative, making the information resonate on a personal level.

4. Engaging Narrative:

Publicistic style often adopts storytelling techniques to craft a compelling narrative. By presenting facts within a captivating story, writers draw readers into the narrative, making the information more relatable and compelling. This engagement enhances the overall impact of the writing.

Techniques Employed in Publicistic Writing:

1. Hyperbole:

Exaggeration, or hyperbole, is a prominent technique in publicistic writing. By amplifying certain aspects of a story, authors aim to capture the reader's attention and emphasize the significance of the topic. Hyperbole serves as a powerful tool to underscore key points and leave a lasting impression.

2. Analogies and Comparisons:

Publicistic writers frequently employ analogies and comparisons to elucidate complex ideas. By drawing parallels between different concepts or using relatable comparisons, writers make the information more accessible and relatable to the audience.

3. Addressing the Reader Directly:

Breaking the fourth wall and addressing the reader directly is a common practice in publicistic writing. This technique creates a sense of intimacy and involvement, encouraging readers to actively engage with the material. Direct reader engagement fosters a connection that goes beyond the conventional reader-writer dynamic.

4. Use of Personal Anecdotes:

Incorporating personal anecdotes or real-life examples adds a human touch to publicistic writing. Readers are more likely to connect with the material when it includes relatable stories that evoke empathy or resonate with their own

experiences. Personal anecdotes enhance the authenticity of the writing, making it more impactful.

Impact on Readers and Society:

1. Shaping Public Opinion:

One of the primary roles of publicistic writing is to shape public opinion. By presenting information in a persuasive manner, authors influence how readers perceive and interpret events. The subjective nature of publicistic style allows writers to advocate for specific perspectives, shaping the narrative to align with their intended message.

2. Fostering Critical Thinking:

Publicistic writing serves as a catalyst for critical thinking. By encouraging readers to question assumptions, consider alternative perspectives, and reflect on the issues presented, publicistic pieces contribute to a more engaged and informed readership. The interplay of subjectivity and persuasive techniques challenges readers to think beyond the surface, fostering a deeper understanding of complex issues.

3. Inspiring Action:

A well-crafted publicistic piece has the potential to inspire action. Whether it's a call to activism, a plea for social change, or a push for personal reflection, persuasive writing motivates readers to take meaningful steps based on their newly formed perspectives. The emotional connection established through publicistic style can drive readers to translate their sentiments into tangible actions.

Conclusion: Publicistic style, with its blend of journalistic rigor and persuasive finesse, emerges as a powerful tool for communication and influence. The interplay of subjectivity, rhetorical devices, emotional appeal, and engaging narrative techniques distinguishes publicistic writing from traditional journalism. As readers, it is crucial to approach publicistic writing with a discerning eye, recognizing its potential to shape opinions and attitudes.

In conclusion, publicistic style transcends the boundaries of conventional journalism, offering a nuanced approach to information dissemination. By understanding the key features and techniques employed in publicistic writing, readers can navigate this unique style more effectively, appreciating its impact on shaping public opinion, fostering critical thinking, and inspiring action. The influence of publicistic style extends beyond the written word, leaving an indelible mark on the way we perceive and engage with the world around us.

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TITLE: THE ART OF PERSUASION: UTILIZING PROVERBS AND SAYINGS IN PUBLICISTIC STYLE

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Annotation. *This article delves into the strategic utilization of proverbs and sayings in publicistic style, shedding light on how these succinct expressions enrich the communicative landscape. By examining their historical roots and cultural significance, readers gain insights into the art of crafting compelling narratives and persuasive arguments. Key examples illustrate the seamless integration of proverbs and sayings, while the discussion highlights their ability to resonate with diverse audiences.*

Keywords. *Proverbs, sayings, publicistic style, persuasion, communication, rhetoric, cultural significance, linguistic enrichment, narrative crafting, audience engagement.*

Proverbs and sayings, often rooted in cultural wisdom, offer writers a unique avenue to connect with readers on a profound level. By seamlessly integrating these expressions into publicistic style, writers can tap into shared cultural experiences, fostering a sense of familiarity and resonance. This article explores how such strategic incorporation serves not only as a nod to tradition but also as a means to elevate the persuasiveness of the message.

Tracing the historical origins of proverbs and sayings provides context for their enduring relevance. From ancient wisdom passed down through generations to contemporary adaptations, this article unravels the rich tapestry of these linguistic treasures. Understanding their roots allows writers to leverage the cultural weight embedded in these expressions, adding depth and authenticity to their publicistic endeavors.

Through real-world examples, this article illustrates how proverbs and sayings have been wielded effectively in publicistic writing. Whether used to underscore a point, invoke emotion, or establish a memorable rhythm, these case studies demonstrate the versatility of integrating these linguistic devices into modern communication.

In the dynamic landscape of publicistic style, the artful use of proverbs and sayings emerges as a potent strategy. By marrying tradition with contemporary discourse, writers can amplify the impact of their messages, fostering a deeper connection with their audience. This article encourages writers to embrace the timeless wisdom encapsulated in proverbs, unlocking a powerful dimension in the realm of publicistic persuasion.

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O‘ZBEKISTON TA’LIMIDA UZVIY BOG‘LIQLIK VA RIVOJLANTIRISH USULLARI

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***Annotatsiya.** Ushbu maqolada bugungi kunda bo‘layotgan ta’limdagi o‘zgarishlar, pedagog –o‘qituvchilarimiz uchun tavsiyalar berilgan. Oliy ta’limgacha bo‘lgan ta’lim bosqichlarida sifatli ta’lim berish usullari haqida so‘z yuritiladi. Barkamol inson tarbiyasida oila va jamiyati o‘rni haqida so‘z yuritilgan.*

***Kalit so‘zlar.** ta’lim turlari, oliy ta’lim, o‘rta maxsus ta’limi, o‘quv fanlari*

Mustaqil Respublikamiz amaliyotida bugungi kunda qo‘llanilayotgan qonunlarimizdan va jamiyatimiz hayotida olib borilayotgan islohotlardan kelib chiqqan holda aytishimiz mumkinki, har tomonlama kamolga yetgan barkamol, erkin va mustaqil shaxs uchun zarur bo‘lgan ma’naviyat , kuchli bilim va milliy g‘urur kabi fazilatlarni shakllantiisj dolzarb vazifadir. Shuningdek, jamiyat hayotini tubdan yangilash, fuqarolarda ishlab chiqarish va mehnatga bo‘lgan ijobiy munosabatni qaror toptirish , bunyodkorlik g‘oyalarini tarbiyalash , ijtimoiy munosabatlarning yangicha mazmun kasb etishiga erishish kabi maqsadlar ham ko‘zlandi. Bu maqsadlarga erishish ta’lim tizimida ham ilg‘or g‘oyalarni qaror toptirish , yangi uslublarni amaliyotga tadbiq etilishini taqozo qilmoqda.

O‘zbekiston Respublikasi Prezidenti Sh.M.Mirziyoyev o‘z nutqida bir so‘z bilan kunning eng aniq va lo‘nda maqolini aytib o‘tganlar: “ O‘z bolangni o‘zing asra”. Darhaqiqat, ayni zamonda shiddatli g‘oyalar kurashi ketayotgan bir davrda , farzand tarbiyasi va uning bilim olishi nafaqat pedagog xodimlar , balki mamalakatimizning har bir fuqarosi oldidagi katta mas’uliyatdir. Xozirgi kunimizda turli kuchlar tomonidan o‘z maqsadlarini ifodalovchi mafkuraviy qarash va g‘oyalarga yoshlarni tortish harakatlari ham yo‘q emas. Bu harakatlar negizini, asosan, buzg‘unchi g‘oya , qo‘poruvchilik, milliy mentalitetimizga mos kelmaydigan kayfiyatini ifodlaovchi qarashlar tashkil etadi. Dunyoqarashi yetarli darajada shakllanmagan , hayotiy tajribasi kam bo‘lgan yoshlar ongiga ta’sir qilish orqali ular o‘z g‘arazli maqsadlariga erishadilar. Ayni mana shu jihat ham biz uchun eng xavfli jihatdir. Binobarin , biz ta’lim sohasidagi kishilar maslaning bu tomoniga e’tibor qaratishimiz kerak.

O‘zbekiston Respublikasi Prezidentining “Oliy ta’lim muassasalariga kirish uchun munosib nomzodlarni maqsadli tayyorlash tizimini yanada takomillashtirish to‘g‘risida”gi qarori O‘zbekiston Respublikasidagi ta’lim tizimiga qarashli har bir mas’ul xodimlar oldiga ham katta vazifalarni aniqlab qo‘ygan. Zero , biz pedagoglar o‘z qaramog‘imizdagi o‘quvchi va talabalarning oliy ta’lim muassasasiga kirishi uchun shu kungacha ta’limda qo‘llanilgan foydali tajribalar bilan birgalikda eng ilg‘or pedtexnologiyalardan o‘zimizga hos usullarni joriy qilishimiz darkor. Yuqori natijalarga erishish uchun , avvalo, pedagog :

- O‘z kasbini sevishi , unga fidoyi bo‘la olishi va o‘z sohasida chuqur bilimga ega bo‘lishi , o‘z ustida uzluksiz ishlashi ;

- Har bir o‘quvchi psixologiyasi bilan ishlay olishi, ya‘ni o‘quvchi yoshlarning ruhiyatiga ijobiy ta’sir qila olishi;

- Guruhdagi a’lochi talabalarga turtki bergan holda (deyarli ular mustaqil ishlashga qobil bo‘ladi) qobilyatini va o‘zlashtirishi sustroq bo‘gan talabalar bilan ko‘proq, shuningdek individual ishlashi;

- Talabani chalg‘itadigan murakkab interfaol usullardan ko‘ra soddaroq , talaba uchun qulayroq metodlardan foydalanish ;

- O‘zining tashqi ko‘rinishi , odob-axloqi va muomala madaniyati bilan ham o‘rnak bo‘lishi va hokozo.

Bundan tashqari o‘rta maxsus ta’lim muassasalarida chuqurlashtirilgan fanlar soatini ko‘paytirish, o‘quv mashg‘ulotlarini kichik guruhlarga bo‘linib o‘tilishi ham o‘quvchilarning oliy ta’lim muassasalariga kirishlari uchun katta samara beradi deb o‘ylaymiz. Ushbu sabadan ham bugungi kunda akademik litseylarda chuqurlashtirilgan fanlarni shunday guruhlarga bo‘ish joriy qilindi.

Ushbu qarorning uchinchi bo‘limida belgilanganidek , oliy ta’limgacha bo‘lgan bilim maskanlarining(akademik litsey, kollej, maktablar) faoliyat ko‘rsatishi, ulardagi o‘qitish sifatini ta’minlash hamda ularning moddiy-texnika bazasi va yuqori malakali o‘qituvchilar bilan ta’minlanganligi , ta’lim- tarbiya jarayoni ustidan nazorat qilinishi , bitiruvchilarning oliy ta’limga kirish ko‘rsatgichlarini to‘liq ta’minlash shaxsiy mas’uliyat qilib olinishi kerak. Shuningdek, oliy ta’limgacha bo‘lgan muassasalarda umum ta’lim maktablaridan eng bilimli, iqtidorli, qobilyatli o‘quvchilarni qamrab olish ham masalaning eng muxim jihatlaridandir. Bunda o‘qituvchilar tomonidan maktablardan iqtidorli o‘quvchilarni tanlash va va tanlangan o‘quvchilarni adolatli test sinovlari, shuningdek, har tomonlama qobilyatlarini sinash asosida qabul qilinishi natijaga erishishdagi eng asosiy bosqichdir. Keyingi bosqichda, akademik litseylarga qabul qilingan o‘quvchilarni muntazam ravishda olayotgan bilimlatrini nazorat qilib borish, ya‘ni sifat ko‘rsatgichini qay darajada borayotganini aniqlash zarur.

So'ngra natijalarga asoslanib, har bir guruhning kuchli "Guruh o'nligi" undan keying bosqichda esa, ta'lim muassasasining , masalan, akademik litseyning "Akademik litsey o'nligi"ni yaratish ham o'quvchilar o'rtasida sog'lom raqobatni raqobqtni shakllantiradi. Ushbu tahlil natijasida aniqlanib, yuqori natijaga erishgan o'quvchilarni rag'batlantirib borish, aksincha o'zlashtirishga qiynalayotgan talabalarni eng olg'or o'qituvchilarga biriktirilishi lozim va ular bilan ta'limning eng ilg'or, yangicha usullaridan foydalanib, bilimlarini oshirish uchun chin dildan harakat qilinmog'i lozim. Bu masalalarning tahlilini butun jamoa, qolaversa, ota-onalar hamkorligida jiddiy muhokama qilish ham yechimlardan biridir deb hisoblaymiz.

Shuningdek, Prezidentimiz tomonidan 2017- yil 26 sentabrda qabul qilingan "Oliy ta'lim muassasalariga kirish uchun nomzodlarni maqsadli tayyorlash tizimini yanada takomillashtirish to'g'risda"gi qarori ham muxim ahamiyat kasb etdi. Ma'lumki, akademik litseylar ta'lim tizimida o'ziga xos o'ringa ega bo'lib, ularda asosan, oliy ta'limda o'qishini davom ettirishni xohlovchilar tahsil olishadi. Albatta, akademik litseylarda tahsil olayotgan talabalarga oliygohlarga kirish ko'rsatkichlarini yaxshilash bugungi kunning eng dolzarb masalasi. Bizning fikrimizcha, har bir litsey Prezidentimizning talablari bo'layotgan ta'lim sifati har bir ta'lim maskani kabi akademik litseylar ham eng oliy ilm dargohlaridan bo'lishi darkor. Ma'lumki, 2017-2018 yilgi o'quv yilidan akademik litseylarda o'qish muddati ikki yillik qilib belgilangan. Bu esa o'qituvchi va o'quvchilar uchun juda katta mas'uliyat yuklagan. Sababi endi oliygohlarga kirish uchun tayyorgarlik vaqti bir yilga qisqargani samaradorlikka yanada jiddiy e'tibor berilishi talab qiladi. Bu yerda yana bir jihatni e'tiborga olish kerakki, ta'limning bu bosqichida talabalar balog'at davrida bo'lib, hayotining eng mas'uliyatli pallasida , ya'ni o'z kelajak yo'lini tanlash chog'ida ayrim chalg'ituvchi narzlarga vaqtlarini sarflashlari mumkin. Turli komyuter o'yinlari va ijtimoiy tarmoqlarning salbiy jihatlari yoshlarimizning tafakkuri, dunyoqarashining shakllanishiga, albatta, yomon ta'sir qiladi. Shu paytda o'quvchi yoshlarni bo'sh vaqtlarini samarali o'tkazish holatlariga ham o'quvchilarning ota-onasi, ustozlari alohida e'tiborli bo'lishi lozim.

Ta'lim muassasalaridagi psixologlarning ham ushbu masalalar doirasidagi olib borishi lozim bo'lgan vazifalarini aniqlab olish darkor. Masalaning yana bir tomoni shundaki, tanlov asosida qabul qilingan o'quvchilar ichida ham o'zlashtirishi pastroq bo'lgan o'quvchilar mavjud bo'ladi. Mana shunday o'quvchilar bilan ish olib borish, bunday o'quvchilarga birinchi navbatda, psixologik yordam berish(jumladan, irodani mustahkamlash, qat'iyatlilikka ega bo'lish, ruhiy tetiklikni qaror toptirish, o'z ustida ishlash, kelajakka bo'lgan

ishonchini komol toptirish, tengdoshlari bilan sog'lom raqobat qila olish, ilmiy adabiyotlar bilan ishlash ko'nikmalarini shakllantirish kabi) berishda muassasa psixologining yordamiga suyanishimiz lozim. Bu borada shuni hisobga olish kerakki, bu ta'lim davrida o'spirinlarga xos individual –psixologik xususiyatlarni inobatga olgan holda ta'lim ma'naviy-ma'rifiy uzviy birligi, aloqadorligini ta'minlash asosida ularni pedagogik jihatdan to'g'ri tashkil etish, mavjud tarbiyaviy omillardan samarali foydalanish hamda bu jarayonga nisbatan texnologik yondashuvning qaror topshirilishiga erishilsa, kollej va akademik litsey, oliy ta'lim talabalari o'rtasida ma'naviy va ilmiy bilimni rivojlantirishda samarali natijalarni qo'lga kiritish mumkin. Ya'ni talabaning oilasi bilan birgalikda hamkorlikda ishlashni ham yuqori darajaga olib chiqish kerak. Balki, talabalar ancha mustaqil bo'lishgan, mas'uliyatni o'z zimmalarida qoldirilgani, individual ishlashni lozim topishi mumkin, ammo bizning fikrimizcha, avvalo, ta'lim olishdagi mas'uliyatni birinchi navbatda talabaning o'z zimmasida qoldirgan ma'qul, lekin ota-onalar bilan hamkorlik milliy mentalitetimizdan kelib chiqqan holda talabaga yanada sergaklik va intizomli bo'lishda samara beradi. Zero, bugungi kunda Davlatimizda olib borilayotgan siyosatimizda jamiyatimizning barcha jabhalarida, shu jumladan oila va uning iqtisodiyoti, ma'naviy manfaatlarini himoya qiluvchi qator tadbirlar amalga oshirilyapti va shunday ekan ota-onalarga ham yetarlicha mas'uliyat yuklansa bo'ladi.

Bizning sharqona ma'naviyatimizda ota-ona farzandi uchun hamisha hamma narsaga tayyor turadi. Farzandining voyaga yetishi, uning kamol topishi uchun bor imkoniyatlarini ishga solishadi. Shu bilan birga o'z tarbiyasini to'g'ri so'z, vijdonli, kamtar, o'zgalarning moliga ko'z olaytirmaslik, ilm olish nihoyatda muxim ekanligini uqdirgan holda tarbiyalaydi. Ammo bugungi kunda ko'p oilalarda farzandlar bilan bog'liq barcha masalalar onalar zimmasiga yuklanishi sir emas. Eng achinarlisi, o'z burchiga mas'uliyatsizlarcha qarayotgan ota-onalarning ham mavjudligi achchiq haqiqatdir, ya'ni “vaqti yo'q” ekanligidir. Natijada farzand, tarbiyani telefon orqali internet, televizor yoki ko'chadan oladi. Shunday tarzda ulg'aygan bola yaxshi xulqli, ilm- ma'rifatli va kelajakda el-yurtiga xizmat qiladigan, ota-onasiga rahmat olib beradigan bola bo'lishiga kim kafolat bera oladi?! Shunday ekan, aslida har bir ota-ona qaysi kasb, sohada ishlashidan, band bo'lishidan qat'iy nazar ogoh bo'lishi shart. Zero “bola tarbiyasida yomon niyat va qo'pollik emas, balki sabr-toqat, mehribonli, chidamlilik, shavqatu sezgirlik bilan olib borilishi kerak” deya ta'kidlaydi, Razoiddin ibn Fahriddin “Oila” nomli risolasida. Shuningdek, diniy manba'larimiz Qur'oni Karim va Hadisi shariflarimizda ham bir necha marotaba bu haqida to'xtalib o'tiladi. Jumladan, payg'ambarimiz Muhammad(s.a.v.) bu borada shunday e'torof etadilar: “ Ota –ona

farzandiga yaxshi xulqdan ham ortiqroq narsa bera olmaydi”. Demak, ota-ona tomonidan farzandig beriladigan eng yaxshi narsa qimmatbaho kiyim, yaxshi taom va ajoyib sovg‘a emas, balki go‘zal xulq va yaxshi tarbiyasi ekan. Avvalo, ota-onalar o‘zlari buni chuqur anglab yetishlari kerak. Qolaversa, O‘zbekiston Respublikasi Konstitutsiaysining 64- moddasida “Ota – onalar o‘z farzandlarini voyaga yetgunlariga qadar boqish va tarbiyalshga majbur”. Demak har qanday ta‘lim muassasasi o‘z oldiga qo‘ygan maqsadni amalga oshirish uchun oila bilan bahamjihat ish olib borish ayni muddaodir.

Albatta o‘z oldiga buyuk maqsadlar qo‘ygan har qanday davlat o‘zidan oldingi taraqqiyotning ma‘lum bir yuqori bosqichiga erishgan davlatlarning yutuqlaridan foydalanishga harakat qiladi. Shu o‘rinda Oliy ta‘limgacha bo‘lgan bosqichlarda yoshlarga ta‘lim borasida ba‘zi rivojlangan davlatlar tajribasiga murojaat qilish aynan xozirgi ta‘limimizda o‘z aksini topmoqda, ammo bunday tajribalardan foydalanishimizda milliy mentalitet, xalqimiz turmush-tarzidan kelib chiqqan holda an‘anaviy va fikrlashga o‘rgatadigan usullarni birlashtirgan holda taqdim etish, amalda qo‘llash foydadan holi bo‘lmaydi. Buyuk britaniyada o‘smirlar 16 yoshida majburiy ta‘lim bosqichini tugatganidan so‘ng universitetga kirishga tayyorlanish uchun ta‘limni davom ettiradi. Universitetga kirishni istovchilar ikki yillik A-level deb ataladigan davlat o‘quv muassasasida oliygohga tayyorlanishadi. Har ikki o‘quv yili oxirida o‘quvchilar maxsus testdan o‘tishadi. Bu o‘quv muassasida o‘quvchilar o‘zlariga takif qilingan 15-20 o‘quv fani orasidan o‘zlariga kerakli mutaxassis fanlarini tanlab olishadi va shu fanlar bo‘yicha oliy o‘quv dargohlariga kirish uchun tayyorlanishadi. Buyuk Britaniyada chet eldan kelib ta‘lim olishni istovchilar ham aynan mana shu turdagi o‘quv yurtiga kelib ta‘lim olishni boshlaydilar va oliygohda o‘qishni davom ettiradilar.

Xulosa, qilib aytganda O‘zbekiston Respublikasining bugungi sharoitida ma‘naviyat va ilm- fan, ta‘lim jamiyatning rivojlanganligi hamda shaxsning yetukligini belgilovchi me‘zon sifatida e‘tirof qilinib, uning mohiyatini pedagogik nuqtayi nazardan o‘rganish jiddiy talabdir. Yoshlar bilan ishlash tizimining bilimli yoshlarni tarbiyalashda mas‘uliyatli bosqich ekanligini har bir muassasa xodimi to‘g‘ri anglamog‘i lozim. Yoshlarimizning yetuk shaxs qilib ytarbiyalshning muxim omili sifatida professor-o‘qituvchilarning shaxs ma‘naviyati va uni rivojlantirish to‘g‘risidagi nazariy va amaliy bilim, ko‘nikma va malaklarini yanada boyitish orqali pedagogik mahoratlarini takomillashtirish maqsadga muvofiqdir.

Foydalanilgan adabiyotlar ro‘yhati.

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ROLE OF AUTOMATION IN HEALTHCARE

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Annotation. *This article discusses the necessary rules for writing a thesis statement. It outlines the requirements typically imposed on theses. It explains how to structure a thesis statement.*

Key words. *AI-powered tools, X-rays, MRIs, and CTscans, Robotic Surgery, Medication Management.*

Automation in healthcare leverages advanced technologies to streamline processes, enhance efficiency, reduce costs, and improve patient outcomes. This section explores various aspects of automation in healthcare, including its applications, benefits, challenges, and future trends. Appointment Scheduling: Automated systems can manage patient appointments, send reminders, and reschedule visits without human intervention, reducing administrative burdens and improving patient compliance. Billing and Coding: Automation tools can handle billing and coding processes, minimizing errors and speeding up the reimbursement cycle. These tools ensure that medical claims are accurately coded and submitted in a timely manner. Electronic Health Records (EHRs): Automation in EHRs enables efficient data entry, retrieval, and sharing, enhancing care coordination and reducing the time healthcare providers spend on documentation. Diagnostic Support: AI-powered tools can assist in interpreting medical images (such as X-rays, MRIs, and CT scans), identifying abnormalities, and aiding in early diagnosis. Robotic Surgery: Surgical robots enhance precision and control during operations, leading to better surgical outcomes and faster recovery times for patients. Medication Management: Automated systems can manage medication dispensing, ensure proper dosage, and reduce medication errors, thereby enhancing patient safety. Chatbots and Virtual Assistants: These tools provide 24/7 support to patients, answering queries, offering health advice, and assisting with appointment bookings. Telehealth Services: Automation facilitates telehealth by enabling remote consultations, patient monitoring, and follow-up care, thus expanding access to healthcare services. Remote Patient Monitoring: Wearable devices and sensors can continuously monitor patients' vital signs and transmit data to healthcare providers for real-time analysis and intervention. Facility Management: Automated systems can manage hospital facilities, including lighting, temperature control, and security, enhancing the overall environment and operational efficiency. Time Savings: Automation reduces the time healthcare professionals

spend on repetitive tasks, allowing them to focus more on patient care. **Process Streamlining:** Streamlined workflows and processes reduce bottlenecks and improve overall efficiency within healthcare organizations. **Error Reduction:** Automation minimizes human errors in tasks such as data entry, medication dispensing, and diagnostic analysis, leading to more accurate outcomes. **Consistency:** Automated systems provide consistent and reliable results, ensuring uniformity in healthcare delivery. **Operational Costs:** Automation reduces operational costs by decreasing the need for manual labor, minimizing waste, and optimizing resource utilization. **Financial Savings:** Improved billing accuracy and faster reimbursement processes enhance financial efficiency and reduce losses. **Early Diagnosis and Treatment:** Automated diagnostic tools enable early detection of diseases, leading to timely and effective treatment. **Personalized Care:** Automation facilitates the analysis of large datasets to provide personalized treatment plans based on individual patient profiles. **Convenience:** Automated systems provide patients with easy access to information and services, improving their overall experience and satisfaction. **Engagement:** Tools like chatbots and virtual assistants engage patients more actively in their care, promoting better health outcomes. **Initial Investment:** The cost of acquiring and implementing automation technologies can be high, posing a barrier for some healthcare organizations. **Maintenance and Upgrades:** Ongoing maintenance and upgrades of automated systems can add to the overall cost. **Resistance to Change:** There may be resistance from healthcare professionals who are accustomed to traditional ways of working. **Cybersecurity Threats:** Automated systems can be vulnerable to cyberattacks, necessitating robust security measures to protect patient data. **Compliance:** Ensuring compliance with regulations such as HIPAA (Health Insurance Portability and Accountability Act) is essential to safeguard patient privacy. **AI-powered chatbots** can handle a wide range of tasks from answering common medical questions to assisting in chronic disease management by providing regular check-ins and reminders. **Telehealth Services:** Automation in telehealth includes automated patient triage, where patients are assessed and directed to the appropriate care level. It also involves integrating telehealth visits

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НАУЧНЫЕ ИННОВАЦИИ В ТЮРКСКИХ СТРАНАХ — ЭТО НОВЫЕ ВОЗМОЖНОСТИ ДЛЯ МЕЖДУНАРОДНОГО НАУЧНОГО СОТРУДНИЧЕСТВА

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Изучение тюркского мира играет важную роль в понимании мировой истории и культуры. Тюркоязычные народы известны с III в до н.э. первые упоминания этнонима тюрк появилось в начале VI в. в Монгольском Алтае и относилось к небольшому народу в последствии ставшим доминирующим в Средней Азии. Тюркский мир включает в себя множество стран и народов, разбросанных по обширной географической территории, от Восточной Европы до Центральной Азии и даже Сибири. Это разнообразие культур, языков и традиций делает изучение тюркского мира критически важным для глобальной науки и межкультурного понимания.

История тюркских народов насчитывает несколько тысячелетий, начиная с древних кочевых племен Центральной Азии, таких как скифы и гунны, до могучих империй, таких как Тюркский каганат, Османская империя и Золотая Орда. Эти народы не только влияли на политическую карту мира, но и играли ключевую роль в культурном и экономическом обмене между Востоком и Западом. Великий шелковый путь, который связывал Китай с Европой, проходил через тюркские территории и способствовал обмену товарами, идеями и технологиями.

Тюркские народы оставили значительное культурное наследие, которое включает в себя литературу, музыку, изобразительное искусство и архитектуру. Изучение тюркского фольклора и эпических произведений, таких как "Китаб-и-Деде Коркут" и "Манас", позволяет лучше понять мировоззрение и ценности этих народов. Кроме того, тюркские языки имеют богатую письменную традицию, начиная с древнетюркских рунических надписей до современной литературы, что является важным объектом лингвистических и филологических исследований.

Тюркские языки представляют собой одну из крупных языковых семей мира, включающую в себя такие языки, как турецкий, азербайджанский, казахский, узбекский, уйгурский и многие другие. Изучение этих языков не

только способствует сохранению культурного наследия, но и позволяет лучше понять взаимосвязи и различия между тюркскими народами. Лингвистические исследования тюркских языков помогают пролить свет на процессы языковой эволюции, заимствования и ассимиляции, происходившие на протяжении веков.

Сегодня в мире проживают, по разным источникам, от 160 до 180 миллионов представителей тюркской этнолингвистической группы. Только в Евразии тюркские народы имеют в своем составе 40 этнических групп. В шести государствах мира в этнической структуре населения тюркоязычные народы выступают в роли государствообразующих.

Ученые отмечают, что работа по изучению и систематизации данных по эпохе зарождения тюркских народов, истории

Привлечение к работе над монографией ученых разных стран позволило создать широкий спектр мнений по многим спорным и еще недостаточно изученным сюжетам истории тюркоязычных народов. Это вопросы происхождения, формирования и расселения тюркских народов, их взаимодействия с соседними народами, создание различных союзов и государств. Фундаментальные исследования российских археологов, ведущих ученых Казахстана, Азербайджана, Таджикистана, Турции, Киргизии и Германии и систематизация материалов объединяющие летописи об истории тюркских народов Центральной Азии важны.

Тюркские страны, такие как Турция, Казахстан, Узбекистан и Азербайджан, играют важную роль в современной мировой политике и экономике. Эти страны обладают значительными природными ресурсами, стратегическим положением и растущим экономическим потенциалом. Понимание их истории, культуры и политических процессов необходимо для развития эффективной дипломатии и международного сотрудничества. Кроме того, тюркские государства активно участвуют в международных организациях, таких как Тюркский совет, что подчеркивает их стремление к региональной интеграции и совместному развитию.

Изучение тюркского мира способствует развитию межкультурного диалога и взаимопонимания. В условиях глобализации и усиливающихся миграционных процессов знание тюркской культуры и истории помогает разрушать стереотипы и предвзятое отношение, содействуя формированию более толерантного и инклюзивного общества. Это особенно важно в многонациональных и многоконфессиональных странах, где представители тюркских народов являются значимой частью населения.

Тюркский мир представляет собой богатый объект для научных исследований в самых разных областях — от археологии и этнографии до политологии и экономики. Изучение древних тюркских памятников, таких как Орхонские надписи, позволяет глубже понять исторические процессы, происходившие в Центральной Азии. Современные исследования тюркских обществ дают ценные данные для социологии, антропологии и других гуманитарных наук. Кроме того, тюркские страны активно развивают научные и технологические инновации, что открывает новые возможности для международного научного сотрудничества.

Тюркские народы внесли значительный вклад в мировую культуру и цивилизацию. Их достижения в области литературы, искусства, музыки и архитектуры продолжают вдохновлять и удивлять людей по всему миру. Изучение тюркского мира помогает сохранять и популяризировать это богатое наследие, делая его доступным для будущих поколений. Тюркская каллиграфия, миниатюры, ковроткачество и ювелирное искусство признаны во всем мире и являются частью мирового культурного наследия.

Изучение тюркского мира важно для воспитания молодежи в духе уважения к своим корням и традициям. Это способствует формированию у молодого поколения чувства национальной гордости и ответственности за сохранение и развитие культурного наследия. Образовательные программы, включающие изучение тюркской истории, языка и культуры, играют ключевую роль в этом процессе. Они помогают молодым людям понять свою идентичность и место в мировом сообществе.

Изучение тюркского мира имеет многогранное значение и способствует развитию науки, культуры, международных отношений и межкультурного диалога. Оно помогает лучше понять прошлое и настоящее тюркских народов, способствует их интеграции в глобальное сообщество и укрепляет дружеские связи между странами и народами. В условиях глобализации и быстро меняющегося мира изучение тюркского мира остается актуальной и важной задачей для ученых, политиков, педагогов и всех, кто интересуется историей и культурой человечества. Совместные исследования стимулирует разработку новых подходов, проведение совместных исследований и усиление интеграции между тюркскими народами.

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СЕМАНТИЧЕСКИЕ И СТРУКТУРНЫЕ ОСОБЕННОСТИ ЛЕКСИКИ ЦВЕТООБОЗНАЧЕНИЯ В РУССКОМ ЯЗЫКЕ

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***Аннотация:** В этой статье раскрываются семантические и структурные особенности лексики цветообозначения в русском языке, а также о важных тенденциях изучения цветообозначений: по существу, это сравнительный подход, эволютивный аспект, психолингвистический, деривационный, когнитивный.*

***Ключевые слова:** семантические и структурные особенности лексики, сравнительный подход, эволютивный аспект, лингвистика, психолингвистический, деривационный, когнитивный, художественная литература.*

Лексика цветоименования до недавнего времени не вызывала особого интереса у русских лингвистов. Только в последние два десятилетия слова, называющие цвет привлекли внимания в зарубежной, в том числе, и в русской лингвистике. Этот интерес связан с тем, что в то время лексика цветообозначения стала центром внимания многих работ, рассматривающих в основном проблемы стилистики и семансиологии.

В 50-60 годы начинают выходить разные работы с изучением лексики цветообозначения и во многих статьях выходят этюды об использовании слов с наименованием цвета (к примеру, работы В. А. Московича, Н. Ф. Пелевиной, В. А. Юрика, Куприна, Горького, Паустовского, Бунина и др.). В своей книге «История цветообозначения в русском языке», Бахилина отмечает, что «...нельзя не указать на работу Г. Генре, предоставляющую попытку изучения славянских цветообозначений в плане историко-

этимологическом, с большим, весьма полезным справочным материалом по славянским языкам» [Бахилина, 1975, С. 3].

Огромный вклад для развития лексики цветообозначения русского языка вложила неформальная группа «Колорит» созданная 1990 годы. На протяжении 15 лет эта группа разработала «. технологию создания модной сезонной цветовой гаммы и предложила несколько конкретных цветовых гамм для сезонов в середине 90-х гг.». Также группа ввела разные исследовательские работы в культурно-исторических традициях и психологических факторов восприятия цвета, изучалась роль цвета в рекламе и т. д. [Василевич, Кузницова, 2005, С. 5].

Первые понятия в области цветообозначения в русском языке сложились еще в древние времена — XI-XII вв. В монументах древнего времени цветообозначения представляют скорее дополнительную либо же вспомогательную роль: присуще, к примеру, символическое применение цветообозначений, применение цветовых застывших эпитетов (серый волк). Но уже XVII в. отмечается огромный переворот: выражается большое внимание к цветообозначениям и совершается их бурное развитие. В конце XVII в. сфера цветообозначения представляется в практически современном варианте, в художественной литературе начинается цветопись [Бахилина, 1975, С. 11-20].

На сегодняшнее время следует отметить ряд важных тенденций изучения цветообозначений: по существу, это сравнительный подход, эволютивный аспект, психолингвистический, деривационный, когнитивный. Все выше акцентированные направления изучения цветообозначений в известной степени относительны, так как одно изучение способно охватывать различные нюансы описания цветовой семантики.

В сфере зрения сравнительного изучения цветообозначений в действительности лежит целенаправленная конкретизация семантики лексики цветоименований, обнаружение лингвокультурных традиций и установление многофункциональной важности цвета у различных народов. Тенденция предполагает сравнительное исследование цветообозначений различных языков (английский — русский, польский — русский и т. д.). В частности, в труде В. Г. Кульпиной [Кульпина, 2001, С. 470] говорится, что в польском языке использование лексемы серый по отношению к человеку не обладает тем отрицательным значением, которое типично для русского языка. В польском языке серый человек — это обыкновенный, адекватный человек, не невежа и непосредственность.

Эволютивный подход дает возможность проанализировать цветообозначения с точки зрения их возникновения, значения и потребления. Ученые данной тенденции предприимчиво применяют диалектный источник, который обогащает наши суждения о способностях функционирования цвета, о закономерностях использования цветовых названий в языке. В большинстве психолингвистических трудов немаловажную роль занимает вопрос цветовосприятия и цветоощущения. Цвет трактуется как душевно-творческий процесс человека, и по этой причине исследуется не только объяснение отдельно взятой цветолексемы и ассоциативно-смысловые поля, но и влияние определенного цвета или комбинаций цветов на человека. Образцами в этой течения могут послужить работы Бахилиной [1975], Фрумкиной [1984].

Деривационный (словообразовательный) аспект рассматривает анализ особенности лексического значения у прилагательных, обозначающих цвет, их морфемной структуры, морфемного формирования имен прилагательных, семантико-деривационных признаков глагольных и субстантивных лексем, обозначающих цвет [Иваровская, 1998].

Исследование лексики цветообозначения в когнитивном аспекте показывает языковую картину автора, являющую совокупностью всех результатов лингвокогнитивной деятельности этносоциумов. Ученых когнитивного направления интересует проблема восприятия цветовой символики в социальном плане, этнически и ментально. Базисными критериями в когнитивном изучении считаются понятия языковой картины мира и цвета-прототипа. Примером этому может послужить высказывание А. Вежбицкой [1996], которая пишет о том, что прототипом для желтого цвета может послужить солнце. Это могут быть исследования по «цветовому» мышлению одного народа в целом или же изучение особенностей творческого мышления конкретного автора. В области когнитивного аспекта можно также говорить и о лингвокультурных исследованиях. Так например известный лингвист Серов пишет, что «Семантика цветообозначений на сегодняшний день является основной культурологической характеристикой, объединяющей людей по естественному (для их фило - и онтогенеза) семиотическому принципу цветового взаимодействия», «цвет — это вид информации» [Серов, 1990, С. 97].

Изучая лексики цветообозначения, нельзя не отметить также, что данная проблема имеет свое место и в психологии, где исследуется эмоциональное влияние цвета на человека. В сфере психолингвистического аспекта А. П. Василевич [1975, С. 170], Р. М. Фрумкина [2001, С. 168]

раскрывают проблемы «мир цвета», «имена цвета», картины семантических полей наименований цветов, значимость цветовых «смыслов». Лингвисты в психолингвистических работах отказываются от системно-структурных методов изучения цветообозначений, в первую очередь здесь выходит эксперимент. Изучая процессы категоризации, номинации и др. Р. М. Фрумкина изучает вопрос толкования имен цвета и, прежде всего, она рассматривает этимологически непроеводных. Она рассматривает наличие номинативной неопределенности цветового образца и параллельно говорит о проблеме денотативной неопределенности имен цвета [Фрумкина, 1984, С. 175].

Лексика цветообозначения подразделяется на две группы - основные (абсолютные) и оттеночные, при вербализации цветового восприятия. В свою очередь, основные цветонаименования делятся на хроматические, именующие семь цветов радужного спектра, т. е. красный, оранжевый, жёлтый, зеленый, голубой, синий, фиолетовый, и ахроматические - черный, белый, серый. Остальные слова, обозначающие цвет являются оттеночными. Их можно различить по признаку передачи оттенков. Существуют группы цветонаименований, которые передают оттенки цвета аналитически; среди них цветные прилагательные:

- а) вторичной номинации - сиреневый, молочный;
- б) без ясно прослеживаемой этимологии, например, бурый, алый;
- в) с ограниченной сочетаемостью, к примеру, белокурый, карий;
- г) заимствованные - индиго;
- д) неологизмы и архаизмы, например, смарагдовый, кубовый;
- е) терминологические, к примеру этому могут послужить: кобальт, ультрамарин; и наконец,
- ж) окказионализмы [Брагина, 1972, С. 121].

Существует также группа цветообозначений, конкретизирующих оттенки цвета. Ими являются сложные и двусоставные цветонаименования. Сложные цветообозначения - это те лексемы с формантами ярко-, светло-, темно-, нежно. Они уточняют интенсивность окраски. Двусоставные цветообозначения представляют собой наименования смешанных цветов или разноцветных объектов. Например, сине-белый, желто-зеленый [Макеенко, 1999, С. 258].

В дополнении к этому, выделяют и конструктивно-сложные, т. е. генетивные цветообозначения. Например, цвета мёда, цвета слоновой кости и сравнительные обороты, такие как щечки как маков цвет.

В работах Э. Рош в области цветообозначений рассматривает понятие прототипа. Прототип - это член категории, который максимально полно выражает характерные для данной категории признаки и специфические черты, поэтому цветообозначения можно характеризовать по принципу сопоставленности с цветовым прототипом. Например, салатный - «это тоже зеленый», изумрудный - «это такой зеленый»; мы можем сказать, что здесь зеленый - это прототип, имя категории, а оттенки - члены категории. Категория имеет центр и периферию, то есть «более прототипические» и «менее прототипические» члены.

В. И. Иваровская в своем труде показывает десять основных цветов: белый, красный, синий, зеленый, желтый, коричневый, серый, черный, оранжевый, фиолетовый. В основе данной классификации выработано по принципу полевого деления: все вышеуказанные цвета обладают

своим свойствам входить в состав цветовых полей. Более того, все цветообозначения рассматриваются лингвистом с позиции мотивированности - немотивированности [Иваровская, 1998, С. 104-109].

Р. М. Фрумкина отмечает, что в русском языке «наивная картина мира» включает «семь цветов радуги», а также розовый, коричневый и так называемые ахроматические цвета — черный, белый, серый. Данные цвета носители русского языка считают «основными». Менее употребительные, цвета изыскатель называет «прочими». [Фрумкина, 2001, С. 64-85].

К вопросу описания цветообозначений как системы затрагивалась лингвистом Е. А. Косых, которая исследует цветообозначения-прилагательные и сочетания, реализующие функцию цветовых прилагательных. Она отмечает, что система цветообозначений в русском языке может быть представлена с точки зрения структуры следующими номинативными единицами:

а) монологемные;

б) сложные

прилагательные, в структуре которых отмечаются, как правило, два или три корня-основы, представляющие собой названия равноправных цветов и оттенков, либо название цвета с конкретизированием его интенсивности; в) сложные цветообозначения со структурой «сущ. цвет + имя сущ. в И. п.». (цвета хаки); г) сложные цветообозначения со структурой «сущ. цвет + имя прилаг. + имя сущ. в И. п.», либо эта структура передана набором тех же частей речи, но в форме Р. п., например, цвет мокрый асфальт, цвета старой розы [Косых, 2005, С. 78-81].

Лингвист Ю. Д. Апресян вводит в основу деления цветowych прилагательных семантический признак предельности: «Если спектр разделить на участки, называемые основными русскими цветообозначениями красный, оранжевый, желтый и т. п., то максимальной степени (пределу) определенного цвета будет соответствовать середина соответствующего участка. Действительно, на участке красного цвета, например, уклонение в одну сторону будет давать постепенный переход в оранжевый цвет, а уклонение в другую сторону — в фиолетовый. Середина же участка будет соответствовать идеально красному цвету. Аналогичным образом обстоит дело и со всеми другими цветообозначениями» [Апресян, 1995, С. 44].

Большинство ученых в качестве главных цветов указывают «элементарные» цвета, т. е. красный, желтый, зеленый, синий, ахроматические белый и черный, а также серый, розовый, голубой, оранжевый, коричневый, фиолетовый, которые концептуализируются как «смеси» элементарных цветов [Вежбицкая, 1996].

Таким образом, исходя из выше сказанного, можно сделать выводы, цвет имеет огромное значение в жизни современного человека. Человек устроен так, что окружающий мир он воспринимает при помощи цвета. Чем ярче цвет, тем эмоциональнее его влияние на сознание человека. В любой сфере человеческой деятельности можно проследить влияние цвета. По мере того, как человек стал обращать внимание на влияние цвета, ему было интересно изучить и узнать об этом. В связи с этим лексика цветоименований стала центром исследования многих лингвистов. Языковеды, типологи и этимологи исследовали десятки языков и пришли к выводу, что существует ряд универсальных черт в системе цветообозначения, а также отличительные черты их национальнокультурного своеобразия.

Сопутствующее значение языковой единицы представляет собой разновидность прагматической информации, отражающей не сами предметы и явления, а определённое отношение к ним.

При этом дополнительной информацией по отношению к понятию, частью значения, связанной с характеристикой ситуации общения, участников акта общения, определённого отношения участников акта общения к предмету речи, но для него ключевым становится национально-культурное своеобразие.

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МЕТОДОЛОГИЧЕСКИЕ ОСНОВЫ ФОРМИРОВАНИЯ ОПТИМАЛЬНОЙ СТРУКТУРЫ ФИНАНСОВЫХ РЕСУРСОВ ПРЕДПРИЯТИЯ

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***Аннотация.** В исследование изучены проблемы формирования и использования финансовых ресурсов предприятий в части рационального выбора источников финансирования, определения способов формирования оптимальной структуры финансовых ресурсов и оценки эффективности их использования. Целью работы является определение оптимальной и устойчивой модели финансовых ресурсов на примере условного предприятия. Изучение зарубежного опыта в области формирования оптимальной структуры финансовых активов позволяет сделать выводы, что несмотря на существование множеств методов формирования финансов, необходимо выбрать и осуществить индивидуальный подход при разработке модели формирования финансовых ресурсов для отдельного предприятия. По результатам изучения предложены рекомендации по разработке эффективной и оптимальной схемы формирования финансовых ресурсов условного предприятия.*

***Ключевые слова.** Предприятие; Финансовые ресурсы; Структура; Оптимизация; Рентабельность.*

Введение. В условиях нестабильной глобальной рыночной экономики формируется множество проблем в области формирования и использования финансовых ресурсов предприятий, определения рационального выбора оптимальных источников финансирования и способов формирования эффективной структуры финансов. Это условие наталкивает на рассмотрение и анализе существующего опыта в области управления финансовыми ресурсами на предприятиях реального сектора экономики. Разработка оптимальной и эффективной модели управления финансами предприятия способствует повышению его конкурентоспособности, финансовой устойчивости, ликвидности и платежеспособности.

Разработка модели производится в ресурсной стратегии, исходя из состава необходимых ресурсов для достижения стратегических целей. Общая схема модели должна включать в себе внешнюю среду предприятия, формулирующая требования к управлению финансами, и внутреннюю среду,

обеспечивающая выполнение требований к управлению финансовыми ресурсами.

Обзор литературы. Основной задачей управления структурой капитала является определение оптимального соотношения собственного и заемного капитала. Для определения соотношения следует тщательно проанализировать финансовую отчетность прошедших периодов, определить оптимальной методологической модели источников структуры капитала, а также оценить влияние внутренних и внешних факторов на структуру капитала предприятий [1].

Для оценки рациональности структуры финансовых ресурсов рекомендуется построение матрицы перекрестного анализа, выделяющей наиболее значимые для формирования структуры финансовых ресурсов факторы внешней и внутренней среды. Внешняя среда представлена макросредой, микросредой и мезосредой. Макросреда представляет собой факторы, на которые руководство предприятия повлиять не может, но должно учитывать для того, чтобы принять верные решения в области структуры финансовых ресурсов предприятия. Она включает следующие основные факторы: - финансовые; - правовые; - технологические; - социально-культурные; - отраслевые; - степень конкуренции. Внутренние факторы нацелены на поддержание оптимальной структуры финансовых ресурсов. Несмотря на то, что большая часть факторов формирования стоимости относится к неуправляемым, предприятие все же имеет возможность влиять на них косвенно [2].

Для выявления перекрестного анализа факторов на оптимальное соотношение финансовых ресурсов проведен опрос среди ответственных специалистов предприятия на примере ООО “ABC” (далее – “предприятие”). Согласно данной таблице проанализировано влияния факторов внутренней и внешней среды на оптимальное соотношение финансовых ресурсов на предприятие [3].

Таблица 1

Матрица перекрестного анализа факторов, влияющих на процесс оптимизации структуры финансовых ресурсов ООО “ABC”.

Наименование фактора		Меры, влияющие на снижение факторов	Средний показатель (балл)
Факторы макросреды	Финансовые факторы	Учет финансового рынка хозсубъектов	9,8
	Правовые факторы	Наличие опытных юристов	4,5
	Технологические факторы	Наличие развитой инфраструктуры	8,6

	Социально-культурные факторы	Проведение рекламной компании	7,3
	Динамика отрасли	Развитие бизнеса	9,1
	Степень конкуренции	Освоение ниши	9,3
Факторы мезо-среды	Нормативная база	Отслеживание изменений	9,4
	Система налогообложения	Оптимизация прибыли	9,5
Факторы микро-среды	Контроль акционеров	Определение дивидендной политики	8,9
	Кредитный рейтинг	Наличие высокого рейтинга	9,2
	Финансовая гибкость	Доступ к источникам финансирования	9,0
	Конкурентная позиция	Освоение своей ниши	8,9
	Потребители	Наращивание капитала	8,1
Факторы внутренней среды	Стратегия управления капиталом	Выбор оптимальной стратегии	9,7
	Профессионализм менеджеров	Повышения уровня квалификации	8,3
	Степень автоматизации	Использование современных ИКТ	7,9

Результаты анкетного опроса (по шкале 10 баллов) показали, что наибольшее влияние на оптимальную структуру финансовых ресурсов оказывают финансовые факторы, стратегия управления капиталом, система налогообложения, нормативная база и степень конкуренции. Остальные факторы оказывают менее сильное влияние на деятельность выбранного предприятия (таблица 1).

Результаты и выводы. Для оптимизации структуры финансового ресурса ООО “ABC” следует проводить максимизацию уровня рентабельности, минимизировать стоимость финансовых ресурсов и уровня финансовых рисков. Исходя из результатов матрицы перекрестного анализа, предлагается разработать финансовую стратегию предприятия, где при общей потребности в финансовых ресурсах в объеме 100%, соотношение собственного (акционерного) и заёмного капитала капитала (кредит, ссуда) должна составить 71% к 29%. Уровень предполагаемых дивидендных выплат не должен снижаться от отметки менее 10% по отношению к чистой прибыли.

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O‘QUVCHI-YOSHLARNI SOG‘LOM TURMUSH TARZINI KUN TARTIBIDAGI HARAKATLANISHINING RAQAMLI TAHLILI

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Annotatsiya. *Kun tartibi o‘ta mukammal qilib tuzilib foydali, tejamli vaqt sarflashga erishilmasin o‘quvchi o‘zining hissiyotlarini o‘zgaruvchanligi oqibatida kutilmagan istak, hohishlarga taslim bo‘lishi isbotlangan.*

Kalit so‘zlar. *Kun tartibidagi harakatlar, kam harakatlanish, harakat faolligi, aktivmi yoki passiv dam olish, harakatlar defitsiti.*

Harakatlarning turli tumanligi o‘quvchi organizmini normal va jismoniy rivojlanishi uchun zarur. Yunonistondagi qadimgi “ellinlar”larning “Agar kuchli bo‘lishni xohlasang – yugur, chiroyli bo‘lishni xohlasang – yugur, aqlli bo‘lishni hoxlasang ham yugur” deganlari bejiz emas.

Kun tartibi o‘ta mukammal qilib tuzilib foydali, tejamli vaqt sarflashga erishilmasin o‘quvchi o‘zining hissiyotlarini o‘zgaruvchanligi oqibatida kutilmagan istak, hohishlarga taslim bo‘lishi isbotlangan. Behuda o‘yinlar, noo‘rin tomoshalar, maqsadsiz vaqt o‘tkazishlardan qutilishining yagona yo‘li jismoniy harakatlar – mashqlar, o‘yinlar, musobaqalar orqali jismoniy – ruhiy lazzatlanishni, mushaklar bayrami, trenirovkalardan so‘ngi “mazza”ni his qildiradi olishdir. Bu o‘z navbatida jismoniy madaniyat mutaxassislari, ota-onalar, kattalar, akalarning o‘zlarini sog‘lom turmush tarzi (STT) jismoniy madaniyati darajasi bilan bog‘liq. Ongli munosabat, maqsadli harakatlar va ularning samarasini tahliligina faol harakatlarga yo‘l ochadi.

Kam harakatlanish, faol-aktiv harakatlarning kun tartibida kamligi salomatligimiz uchun xavfli ekanligi, gipodinamiya, gipokineziya kasalliklari oqibatidan yuzaga keladigan organizmingizdagi nosozliklar bilan nazariy jihatdan tanishdik. Shuning uchun ham kunlik harakat faoliyatingizni hajmi, uni umumiy me‘yoriy normalarini bilish va har kunlik ijrosini o‘z o‘rniga qo‘yish, bajariladigan

harakatlarga stereotip (odat) yuzaga kelmay, ularni ma'lum muddat shakli, me'yori o'zgartirib turish, mashq mazmunini tahlili orqali STT jismoniy madaniyati mashg'ulotlariga o'zgartirishlar kiritish, harakatlarni muvofiqlashda – o'z yoshimiz va jismoniy imkoniyatlarimizni hisobga olishga yordam beradi.

Farg'ona vodiysi umumiy ta'lim maktablarining o'quvchilari o'rta maktab yoshidagilarni 47,1%, katta maktab yoshidagilarni 33,6% o'zlarining 15-16 yil oldingi tengqurlariga nisbatan 50% kam harakatlanayotganliklari, harakat faolligining past ekanligini aniqladik. Ular uy, qishloq xo'jalik ishlari va boshqa mehnat faoliyatiga nisbatan kam jalb qilinayotganliklarini aniqladik¹.

Haftasiga 6-8 soatdan ortadigan uyushtirilgan harakat faolligi aqliy ish faoliyatining normadagi me'yori deb qaralishi, tolish, charchashni oldini olish markaziy asab tizimining funksiyasi, immunal reaksiyasini normada bo'lishini ta'minlay oladi, degan qarash hozir ham o'z kuchini yo'qotgani yo'q.

Harakatlanishingizni (aktivmi yoki passivmi) o'zingiz tashkillashingiz lozim. Uni tarkibiga: har kunlik bajariladigan ertalabki gigienik gimnastikangiz, maktabdagi haftalik 2 soatlik akademik dars yoki jismoniy mashqlar bilan shug'ullanish, krujoklardan biriga qatnashingiz, bolalar sport maktabi (BSM) yoki bolalar o'smirlar sporti maktabi (BO'SM) dagi trenirovka mashg'ulotlaringiz, maktab musobaqalarida ishtirok etish, sport bayramlari, sport kunlariga tayyorlanish mashg'ulotlarida ishtirok etishingiz davomida bajariladigan harakatlaringiz, darsgacha gimnastika mashg'ulotlaridagi ishtirokingiz, katta tanaffuslardagi uyushtirilgan o'yinlar, o'quv kunining ikkinchi yarimidagi darslarda o'tkaziladigan jismoniy tarbiya daqiqalarining mashqlari, uyda jismoniy tarbiya darsi vazifalarini bajarishdagi harakatlaringiz, mustaqil mashg'ulotlaringizda bajaradigan mashqlar, aka-ukangiz, ota-onangiz bilan birga sayrlar, sayohatlar va boshqa qator mashg'ulotlaringiz kiradi.

Qayd qilingan mashg'ulotlar kun tartibida ongli, maqsadli joylashtirilishi lozim. Siz ulardan olinadigan foydani nazarda tutib, harakatlarni aynan qanday maqsadda bajarayotganligingizni tushunib, uni lozim bo'lgan tahlilini qilib, shug'ullanishingiz orqaligina STT jismoniy madaniyati tamoillari, talablarini bajargan bo'lasiz.

O'quvchilar sog'lig'ini muhofazasining takomillashtirish maqsadida "O'quvchilar harakat rejimi"ga bag'ishlab o'tkazilgan tadqiqotlar (V.I.Kozlov)ning ko'rsatishicha, hozirgi kungi o'quvchilarni o'rtacha sutkalik harakat rejimining ko'rsatkichlari ularni o'z yoshi uchun qo'yilgan talabini faqat

¹ Sobiq Ittifoq – hozirgi Rossiya federatsiyasining jismoniy madaniyat ilmiy tadqiqot instituti rejasi asosida o'tkazilgan O'zbekiston o'quvchi-yoshlari jismoniy tayyorgarligining regional xususiyatlariga oid ilmiy tadqiqotlarning 1984 yil uchun tayyorlangan hisobotidan.

40-45% nigina qoplar ekan xolos. U gipokineziya – sust harakatlanishga odatlangan o‘quvchilarning yuqori nafas yo‘llarini shamollashi holati o‘z tengqurlariga nisbatan 3-5 martaga ortiq ekanligi, bu o‘z navbatida harakatchanligini shakllantirish diapazonini (kuchi, tezligi, chidamliligi va boshqalar) rivojlanishda orqada qolishi, yurak-tomir va nafas tizimi funksional imkoniyatlarini pasayishi, qisqarishiga sabab bo‘ladi, deb ta’kidlamoqda².

Harakatlar defitsiti yog‘ bosish, semizlikning asosiy sababchisidir. Teri ostidagi yog‘ hujayralari ko‘p bolalar soni Farg‘ona viloyatida oxirgi 5 yilda 4.3% ga ortgan. Bunday holat faqat shahar maktab o‘quvchilari orasidagina emas hatto qishloq maktablari o‘quvchilari tarkibida ham kuzatilmoqda (2.3%)³.

Mutaxassislar tomonidan va maxsus adabiyotlarda ta’kidlanishicha, (harakatlarga qo‘yiladigan talablarga turlicha qarashlar bor, shunday bo‘lishi kerak) kichik maktab yoshidagilar uchun harakatlarga bo‘lgan talab (6-9 yoshdagilarga) bir sutkada taxminan 25-30 ming qadam me‘yorida bo‘lishi; 10-12 yoshdagilar uchun 20-25 ming qadam; katta yoshdagilar uchun esa 15-20 ming qadam hajmida harakatlanish zaruriyat ekan. Uni km.ga aylantirsak, masofa sutka mobaynida 10-15 km. oralig‘ida bo‘lishi mumkinligi hozirgi kunda isbotlangan⁴.

Darsdan so‘ng, o‘quv kuni uchun sarflangan quvvatni tiklash aktiv dam orqali soya-salqin, havosi toza joylarda turli hildagi harakatlarni bajarish bilan tashkillansa, bunday kunlik harakatlarning foydasi kuchli bo‘lib, uni “haftaning qaysi kunlarida” yoki sutkaning qaysi paytida shug‘ullanishni ham bilish muhim. Aslida organizm kunning qaysi paytida shug‘ullanish uchun odatlanganligini hisobga olish lozim.

Kechqurun shug‘ullanishga odatlanganda mashg‘ulotni uyqudan kamida 2 soat oldin tugallash zaruriyat. Erta bahor yoki kuz fasllarida ertalab shug‘ullanishni foydasi katta. Bu uyqudan vaqtiliq (ertaroq) uyg‘onish talabini qo‘yadi yoki uyquga yotish vaqtini oldinga surish lozimligini taqozo etadi. Jismoniy yuklamalar katta, ko‘proq jismoniy ish qilish lozim bo‘lgan kunlarida shug‘ullanish o‘ziga xos xususiyatlarga ega. Kross yoki uzoq masofaga yugurish bilan shug‘ullanishni yakshanba kunlariga rejalashtirish maqsadga muvofiq. Shug‘ullanish uchun yaxshi vaqt tushlikdan so‘ng, 1-1.5 soat o‘tkazib, uy vazifalaringizni tayyorlab bo‘lgandan so‘nggi vaqtlarni tanlash yaxshi foyda beradi. Avvalo ruhiy xotirjamlik, so‘ng jismoniy nagruzka bajarish muhim. Jismoniy yuklamalarga sarflangan energiya tiklanmay aqliy faoliyatga o‘tish dars tayyorlash yoki boshqa faoliyatlar samaradorligini pasaytiradi.

² Козлов В.И. “Здоровье закладывается с детства” – М.: Знание, 1988 г. 42-саҳифасидан

³ Farg‘ona viloyati “Bolalar sporti jamg‘armasi”ning 2009 yil uchun hisoboti. Jamg‘arma arxividan olingan.

⁴ Козлов В.И. “Здоровье закладывается с детства” – М.: Знание, 1988 г. 42-саҳифасидан

Kun davomida aqliy va jismoniy ish qobiliyati ikki mahal kuchayadi. Birinchi marta soat 9-13 orasida, ikkinchi marta soat 16-18 orasida, jismoniy ish unumi ko‘proq bo‘ladigan vaqt kunning ikkinchi yarimidir (33).

Ayrim holatlarda faoliyatga xohish pasayishi, noxushlik, o‘zi uchun qo‘yilgan jismoniy va aqliy topshiriqlarga befarqlik kuzatiladi. Bu organizmning sutkali bioritmlarining sikllariga bog‘liqligini ko‘rsatadi. Hozirgi kunda sutkalik ritmlardan tashqari 28 kunlik emotsionallik sikllari, 33 kunlik intellektual sikllar mavjudligi aniqlangan. Har bir siklning teng yarimi “plyus”, ya’ni ish qobiliyatining oshgan davri, ikkinchi yarmisi esa “minus” belgisi – ish qobiliyatni pasaygan davri ostida o‘tishi ta’kidlanmoqda⁵.

STT jismoniy madaniyati mashg‘ulotlaridan so‘ng uyquni buzilishi – yomon tushlar, cho‘chib uyg‘onish, uyqusizlik, ishtahani yo‘qolishi, lohaslik, shug‘ullanishga istakni pasayishi, sal narsaga jahlni chiqishi, tushkun kayfiyatni va boshqa qator salbiy jihatlarni kuzatilishi maktab vrachi yoki jismoniy madaniyat dispanseri mutaxassislariga murojaat qilishni taqozo etadi. Qayd qilingan noxushliklar organizmni sarflagan quvvatini tiklay olmayotganligi, dam olishni noto‘g‘ri tashkillash oqibatida yoki mashg‘ulotlar uchun tanlangan jismoniy yuklama me‘yorini shug‘ullanuvchi organizmi imkoniyatiga muvofiq emasligidandir.

Kunlik harakat faoliyatingizni tahlil qila bilish, uni ijobiy yoki salbiy tomonlari haqida fikrlashga o‘rganishingiz uzoq, sog‘lom umr ko‘rishingiz uchun zamindir. Uzoq umr ko‘rishni o‘rganish, yoshlik davrini uzaytirish, qarilik davridan ham unumli foydalanish muammolari bilan shug‘ullanuvchi fanlar yuzaga keldi. Tibbiyotda bu fanlar “gerontologiya”, “gerontoteriya” deb nomlanadi. Bu fanning xulosalari shundayki, 100 yoshdan ortiq yashovchilarning barchasi doimiy harakatda bo‘lishgan, faol aqliy, jismoniy faoliyatni umrining oxirigacha o‘ziga do‘st tutishgan. Hayotning turli sinovlariga nisbatan, optimistik ruhda bo‘lishgan. Boshqalar hayotini, muhokamasidan qochishgan. Boshqalarga yomonlikni ravo ko‘rmaganlar “bag‘ri keng” bo‘lgan, tanglikni yoqtirmaganlar. Kamchiliklar oxtarishmagan, kimgadir salbiy munosabatda bo‘lishdan o‘zlarini tiyganlar. Eng muhimi dangasalikni og‘ir illat deb bilganlar. Ular norozilik, jahldorlik, dimog‘dorlik, dabdabali yashashdan ko‘ra ulug‘ rus olimi, akademik M.I.Sechenovning “ortobiozi”ni, ya’ni “mashmashasiz” hayot tarzini, sodda yashashni, oddiylikni yoqtirishganlar.

⁵ Бальсевич В.К., Запорожнов В.А. “Физическая активность человека” – К.: Здоровья, 1987 г. 224 с.

Kasallikni nimaligini bilmay, faqat umri tugab, fiziologik o‘lim bilan foniyl dunyoni tark etganlarning barchasi har kuni doimiy va o‘zlari odatga aylantirib umri davomida bajarib yurgan harakatlanish me‘yoriga rioya qilganlar.

“Jahldor, har narsadan norizo, dimog‘dor, harakatlanishni yoqtirmaydigan dabdabali turmush tarzini xush ko‘ruvchilar uzoq yashamaydi”lar deb xalqimiz bejiz aytmagan.

“Erinchoqlik va irodasizlik nihoyatda makkor va pinhoniyl dushman” ekanligi haqida akademik A.A.Mikulini fikrini unutmashlikni yana bir bor takrorlaymiz.

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ФАКТОРНЫЙ АНАЛИЗ СОСТОЯНИЯ ЗДОРОВЬЯ ШКОЛЬНИКОВ

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Аннотация. В работе представлена характеристика здоровья школьников общеобразовательного учреждения «Средняя общеобразовательная школа №152. Ферганы». На основании результатов социологического исследования, данных медицинских осмотров и тестирования физической подготовленности было изучено состояние здоровья учеников.

Ключевые слова. Школьники, здоровье, самооценка, физическая подготовленность, исследование, спорт, физическое развитие.

Наиболее важным компонентом характеризующим здоровье человека является физическая составляющая, которая отражает жизнеспособность всех физиологических систем человека. Образ жизни, наследственные и другие негативные факторы зачастую являются причинами возникновения патологических заболеваний населения уже на ранней стадии развития. Вопросы укрепления и сохранения здоровья детей и подростков на протяжении многих лет являются предметом пристального внимания ученых. Школьники представляют собой специфическую социальную группу, которую объединяет один возраст, особые условия жизни, манера поведения, нормы культуры и жизненные ценности. Подрастающая молодежь подвержена воздействию огромного числа потенциально опасных факторов, которые могут оказывать негативное влияние на состояние здоровья детей и приводят к длительному напряжению приспособительных физиологических механизмов. Здоровье является основным условием для удачной самореализации потенциала молодых людей в учебе и последующей взрослой жизни.

Особенности современного учебного процесса в школе и свойства молодого организма оказывают предельно допустимые психические, моральные и физические нагрузки на все функциональные системы организма. Анализ научной литературы, затрагивающий вопросы здоровья учеников, свидетельствует, что за период обучения в школе здоровье детей не только не улучшается, а зачастую ухудшается [7], [9], [10].

По сведениям образования численность потенциально здоровых выпускников школ в Узбекистане колеблется от 10 до 15 %. Специалисты отмечают, что более 50% школьников, окончивших школу, уже имеют по 2–3 хронических заболевания. Каждый третий выпускник имеет медицинские

противопоказания для службы в армии и всего лишь 15% выпускников можно считать практически здоровыми людьми [1], [4].

Регулярный контроль состояния здоровья, физического развития и уровня физической подготовленности обучающихся, установил ежегодное увеличение количества школьников со слабым иммунитетом и ухудшающимся здоровьем. Ежегодно при разделении школьников по группам здоровья для занятий физической культурой четверть учеников относится к специальной медицинской группе. Продолжает увеличиваться доля детей с аномалиями в осанке, болезнями верхних дыхательных путей аллергического характера. Вызывает тревогу тот факт, что у многих выпускников школ обнаружены заболевания, приводящие к хронизации состояния [6], [8], [9].

Здоровье является основным условием для удачной самореализации потенциала молодых людей в учебе и последующей взрослой жизни. По мнению некоторых ученых, наблюдается ежегодное ухудшение состояния здоровья детского населения и тенденции к улучшению за последние годы не наблюдается [2], [3], [5]. Однако в доступной литературе, нам не удалось обнаружить данные, исследуемые состояние здоровья школьников средней общеобразовательной школы №15г. Ферганы. Наличием данного факта и была обусловлена актуальность нашего исследования.

Целью исследования явился анализ состояния здоровья школьников средней общеобразовательной школы №15 г. Ферганы.

Основные результаты

Чаще всего под здоровьем понимают совокупность разнообразных критериев определяющих жизнеспособность организма человека. На сегодняшний момент достаточно часто при анализе состояния здоровья людей используют материалы социологических исследований. Как правило, это субъективные данные отношения респондентов к здоровью и факторов воздействующих на него. В рамках нашего исследования мы рассмотрели несколько категорий отражающих состояние здоровья учеников: оценку и самооценку здоровья; отношение школьников к здоровью и способы сохранения здоровья.

Социологическое исследование, составившее эмпирическую базу работы, проводилось в сентябре-декабре 2023г. на базе средней общеобразовательной школы №15 г. В обследовании приняло участие 62 человека из числа учеников 9-х классов. Такой субъективный показатель, как самооценка здоровья является одним из основных критериев в социологических исследованиях касаемых темы здоровья.

Исследование самооценки здоровья обучающихся нашей школы показал, что значительная часть интервьюированных признают уровень своего здоровья как хороший и отличный, но определенное опасение вызывает тот факт, что определенная часть респондентов оценивают состояние своего здоровья как «удовлетворительное» и что еще хуже, как «очень плохое» .

Оценка собственного здоровья школьниками выявила, что по большому счету ученики, скорее всего не думают о своем здоровье, чем в действительности располагают им. Данный факт подтверждается тем обстоятельством, что, по данным медицинских осмотров всего лишь 18,5% обследованных учеников нашей школы были признаны здоровыми.

У половины учеников - зафиксированы функциональные отклонения – это II группа здоровья, а значительная часть обучающихся имеют хронические заболевания и по состоянию здоровья отнесены к III и IV группам здоровья.

Одной из ключевых составляющих здоровья человека является физическое здоровье, которое характеризуется функционированием всех органов и систем человеческого организма. А основным критерием физического здоровья является физическая подготовленность.

В результате анализа результатов контрольных испытаний мы выявили, что лишь небольшая часть учащихся нашей школы имеет высокий уровень физической подготовленности, и стоит отметить, что чем старше класс, тем больше наблюдается учеников, обладающих низким уровнем физической подготовленности (табл.1).

Таблица 1 – Уровень физической подготовленности школьников

			Бег	Бег	Бег	Бег	Прыжок в длину с места, см	Сила	Итого
			100 м., с.	30 м., с.	60 м., с.	1000 м., мин.			
11класс	Н	n	15	7	14	12	13	10	71
		%	52	25	47	44	50	33	42
	С	n	8	12	7	4	6	8	45
		%	27	43	23	15	23	27	25
	В	n	6	9	9	11	7	12	54
		%	21	32	30	41	27	40	33
10 класс	Н	n	13	6	12	12	11	11	65

	C	%	48	22	42	44	42	42	40
	C	n	7	9	5	1	8	6	36
		%	26	33	17	8	31	23	22
	B	n	7	12	12	14	7	9	61
	C	%	26	45	41	48	27	35	38
	9 класс	H	n	20	23	23	27	22	32
C		%	21	28	29	36	50	56	32
C		n	16	16	19	18	14	17	100
		%	28	25	24	27	25	20	24
B		n	41	43	36	36	12	31	199
C		%	51	47	47	37	25	24	44

Примечание: * НС – ниже среднего уровня подготовленности, С – средний уровень подготовленности, ВС – выше среднего уровня подготовленности

Серьезность наличия данного факта обусловлена тем, что школьники с низким уровнем физической подготовленности в большей степени, чем лица с высоким уровнем указанного показателя, подвержены риску возникновения нарушений здоровья.

На здоровье отдельно взятой личности, так же как и на здоровье группы людей оказывает влияние целый ряд факторов. По отношению к задачам нашего исследования детям предлагалось указать из шести представленных вариантов два обстоятельства, которые, по их мнению, имеют наибольшее влияние на здоровье. Респонденты-юноши считают, что определяющими являются «природная среда» и «наличие вредных привычек». У девушек ведущие позиции заняли «наличие вредных привычек» и «усилия самого человека».

Реже других факторов ученики называют «качество медицинского обслуживания»: юноши – 14,7 %, девушки – 18,3 %. Скорее всего, данный факт связан с юным возрастом респондентов, когда поправить возникающие проблемы со здоровьем возможно без серьезного вмешательства врачей. Таким образом, ведущие места по влиянию на здоровье школьники отдали внешним обстоятельствам, что может указывать о собственной безответственности за свое личное здоровье или о том, что наличие вредных привычек и состоянию природной среды на данный момент времени в школе уделяют особое внимание на классных часах и в беседах с учениками.

Нами было определено, что забота о здоровье учеников, в обеих гендерных группах, основывается на желании быть физически сильным, не отставать от одноклассников. На 2-м месте – ухудшение здоровья, и на 3-м, влияние данных медицинской информации.

Отрадно отметить, что значительная часть учеников считает необходимым вести здоровый образ жизни. И в меньшей степени респонденты согласились с утверждением, что таким образом жить неинтересно, изнурительно и неразумно, и они не видят смысла в отказе от жизненных удовольствий.

Огромная ценность здоровья в системе жизненных ценностей и установка на внимание к нему стимулируют человека обогащать эти знания и систематически их практиковать.

Результаты анкетирования выявили, что основным элементом здорового образа жизни среди наших школьников являются занятия спортом и отказ от вредных привычек.

Данные проведенного анкетирования с учениками средней общеобразовательной школы №6 показали, что 27,6% опрошенных юношей и 24% девушек систематически занимаются физическими упражнениями. Из них большинство юношей уделяют на это от 3-4 раза в неделю, а основная масса девушек отводит на это 1-2 раза в неделю.

Заключение. На основании полученных данных можно констатировать, что большинство учеников старших классов имеют, средний и ниже среднего, уровень физической подготовленности и данный факт имеет тенденцию к ухудшению по мере взросления молодых людей. Несмотря на высокую самооценку собственного здоровья, большое количество школьников, по итогам медицинских комиссий, имеют функциональные отклонения в состоянии здоровья.

Все вышеизложенное позволяет нам сделать заключение о наличии у наших школьников достаточно посредственного физического здоровья.

Результаты, полученные в ходе исследования, позволяют нам сделать рекомендации по улучшению состояния здоровья подрастающего поколения.

Необходимо проведение систематического мониторинга состояния здоровья учащихся. Который должен включать в себя не только данные физической подготовленности, но и оценку физического развития с помощью антропометрических измерений и индексов, наиболее доступных в условиях школы (индекс массы тела, жизненный индекс, коэффициент пропорциональности, силовой индекс). Необходимо также проводить контроль функциональной подготовленности, хотя бы фиксируя пробу генчи,

штанге, частоту сердечных сокращений, артериальное давление и жизненную емкость легких). Помимо прочего, нужно контролировать психоэмоциональное состояние школьников при помощи анкетирования и психологических тестов.

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JISMONIY TARBIYA VA SPORT MUTAXASSISLARINING KASB MAHORATINI RIVOJLANTIRISH MUAMMOSI

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***Annotatsiya:** maqolada jismoniy tarbiya va sport mutaxassislarining kasb mahoratini rivojlantirish muammosi tadqiq etilgan.*

***Kalit so'zlar:** tarbiya, jismoniy tarbiya, sport, sport mashg'uloti, kasb mahorati, murabbiy.*

Yoshlarimizni ko'proq o'qibo'rganishga, erkin va ijodiy fikrlashga o'rgatadi. Bugungi kun ta'labi bilan aytadigan bo'lsak, yoshlarga bo'lgan e'tibor dunyo miqyosidagi talablar bilan tenglashtiriladi. 2020-yil 25-yanvar kuni O'zbekiston Respublikasi Prezidenti Sh.M.Mirziyoyevning Oliy Majlisga Murojaatnomasida ham "Biz bu yil ayollar va yoshlarni qo'llab-quvvatlash masalasini yangi bosqichga olib chiqamiz" degan tantanavor fikri ham biz ayollar va yoshlarga o'zgacha ruh, o'zgacha shijoat berdi.

XXI asr fan-texnika, axborotlashtirish asri bo'lishligi bilan bugungi adallashib borayotgan ilm-fan yutuqlari kechagi oldimizga qo'yilgan rejalarning natijasi sifatida namoyon bo'lmoqda. Bugungi kunda butun dunyoda ro'y berayotgan globallashuv sharoitida mamlakatimiz barqaror taraqqiy yetib boorish uchun har tomonlama modernizasiyalashgan tizimli yondashuvni taqozo qilayotganligi munosabati bilan olib borilayotgan islohotlar samarasini yanada oshirish, davlat va jamiyatning har tomonlama va jadal rivojlanishi uchun shart-sharoitlar yaratish, mamlakatimizni modernizasiya qilish hamda hayotning barcha sohasini liberallashtirish bo'yicha ustuvor yo'nalishlarni amalga oshirish maqsadida O'zbekiston Respublikasi Prezidenti Sh.M.Mirziyoyevning 2017-yil 7-fevraldagi "O'zbekiston Respublikasini yanada rivojlantirish bo'yicha Harakatlar strategiyasi to'g'risida"gi Farmoni qabul qilinib, Harakatlar strategiyasining to'rtinchi "Ijtimoiy sohani rivojlantirishning ustuvor yo'nalishi"ning to'rtinchi "Ta'lim va fan sohasini rivojlantirish" bandidan kelib chiqqan holda uzluksiz malaka oshirish tizimiga alohida e'tibor qaratildi. Shu asosda O'zbekiston Respublikasi Prezidentining 2017-yil 26-sentyabrda «Pedagog kadrlarni tayyorlash, xalq ta'limi xodimlarini qayta tayyorlash va ularning malakasini oshirish tizimini yanada takomillashtirish chora-tadbirlari to'g'risida»gi qarori qabul qilindi. Unda uzluksiz malaka oshirish tizimi samaradorligini yanada

takomillashtirish, o'qituvchilarning kasbiy kompetentligini doimiy rivojlantirish masalasiga alohida e'tibor qaratildi.

Zamonaviy dunyoda bo'lajak jismoniy tarbiya va sport mutaxassislarining kasb mahoratini rivojlantirishda kasbiy mahoratni o'rgatish muhim va dolzarb masaladir. O'zbekiston Respublikasi Prezidentining 2022-yil 28-yanvardagi "2022-2026-yillarga mo'ljallangan Yangi O'zbekistonning taraqqiyot strategiyasi to'g'risida"gi PF-60-sonli, 2020-yil 29-oktabrdagi "Ilm-fanni 2030-yilgacha rivojlantirish konsepsiyasini tasdiqlash to'g'risida"gi PF-6097-sonli Farmonlarida, O'zbekiston Respublikasi Vazirlar Mahkamasining 2022-yil 7-iyundagi "Yoshlar muammolarini o'rganish va hal etish tizimini yanada takomillashtirish chora-tadbirlari to'g'risida"gi VMQ-312-sonli Qarori bo'lajak jismoniy tarbiya va sport mutaxassislarining kasb mahoratini rivojlantirishga oid normativ-huquqiy hujjatlarda belgilangan.

Ma'lumki, mamlakatimizda jismoniy tarbiya va sportni ommalashtirish ijtimoiy siyosatning muhim yo'nalishlaridan biri etib belgilangan. Chunki sport aholi salomatligini mustahkamlash, yosh avlodni sog'lom va barkamol etib tarbiyalash orqali jamiyatda sog'lom turmush tarzini qaror toptiradi. Turli kasalliklar, yoshlar o'rtasida zararli odatlarning oldini oladi. Sport yuksak madaniyat, vatanparvarlik tuyg'ularini shakllantirishda ham muhim o'rin egallaydi.

Bu sohada erishilgan yutuqlar mamlakatni dunyoga tanitadi, barcha yurtdoshlarga g'urur-iftixor bag'ishlaydi.

Jismoniy tarbiya mutaxassislarining vazifalari qo'yidagilarni o'z ichiga oladi: mashg'ulotlarni rejalashtirish, tashkil qilish, o'tkazish, hisobot va jismoniy tayyorgarlikni tekshirish, pedagogik, o'quv-tarbiyaviy, sport va sog'lomlashtirish ishlariga o'quvchilarni jalb qilish va saralash, sport musobaqalarida hakamlik qilish, tashkiliy ishlar, ma'ruzalar, moliyaviy ishlarda o'z malakasini va kasb mahoratini oshirish va jismoniy tarbiyani boshqarish faoliyatidan iboratdir.

Kasb mahorati rivojlanishining dastlabki bosqichlarida jismoniy tarbiya mutaxassisiga, odatda, sport mashg'ulotlari sohasidagi harakat faolligiga ichki, shuuriy, chetdan ilg'anmaydigan rag'batlar, istaklar ta'sir qiladi. Tor doiradagi kasbiy faoliyatning tanlanishi - sof shuuriy hodisadir, ya'ni o'zini namoyon qilishning eng jozibali shakli bo'lgan sportda nafaqat shaxsiy takomillashish ehtiyojini anglash, balki bunga o'z o'quvchilarini (tarbiyalanuvchilari, talabalari) o'rgatish mahoratini egallab olish bilan bog'liq. Boshqacha aytganda, jismoniy tarbiya sohasidagi kasbiy faoliyat birinchi navbatda shaxsning ongli yondashuvi bilan belgilanadi.

Kasb mahoratida mutaxassisning yuksak namuna modeliga kasbiy faoliyat mazmuni va mutaxassisning shaxsiy sifatlariga bo'lgan ilmiy asoslangan me'yorlar hamda talablar kiradi. Ular kasbiy majburiyatlarni muvaffaqiyatli bajarish imkonini beradi. Bu majburiyatlar ma'nosiga kura bir-biriga yaqin bo'lgan ikkita mazmundor jihatlarga ega. Birinchidan, kishining kasbiy faoliyat davomida egallab oladigan sifatleri yig'indisidir (me'yoriy kasb mahorati).

Ikkinchisi, bu professional shaxsning ichki dunyosi. Bunday insonda kasbiy sifatlar to'plami shaxsning mazmuniy qismiga aylangan.

Pedagogning shaxsi, uning qiyofasi o'quvchilar oldida katta ahamiyatga ega, bilim berish va tarbiya jarayonida o'qituvchisining obro'si o'quvchilarning jismoniy tarbiya mashqlarini aniq bajarishlarida qiyinchilik tug'dirmaydi.

Jismoniy tarbiya o'qituvchisining, sport murabbiyining obro'si uning kasbiga

bo'lgan hurmatiga bog'liq, uning ayrim xislatlari, shuningdek, uning jalb qila olish qobiliyati shu bilan birga asosiy o'rinni egallaydi.

Mutaxassis shaxsining xususiyatlari ichida jismoniy tarbiya va sportda yuqori natijalarga erishish uchun tirishqoqlik, qat'iyatlilik, bir so'zlik, shaxsni yaxshi tushunish, guruhni to'g'ri va ijobiy baholash, o'z rejasi asosida ishlash, o'quvchilar bilan do'stona munosobatda bo'lish muhimdir.

Jismoniy tarbiya va sport to'grisidagi qonunchilikning eng asosiy yo'nalishi - bu insonni har tomonlama rivojlantirish, soglom turmush tarzini o'rnatish, jismoniy va ma'naviy barkamollikka bo'lgan ehtiyojni shakllantirish, jismoniy tarbiya va sportning istalgan turlari bilan shugullanish uchun shartsharoitlar yaratish, kasb-amaliy tayyorgarlikni ta'minlash, kasalliklar, zararli odatlar hamda qonunbuzarliklarning oldini olishni tashkil etishdan iborat. Mutaxassislar tayyorlash va qayta tayyorlashni tashkil etadi, jismoniy tarbiya va sport sohasida fuqarolar manfaatlarining huquqiy himoyasini amalga oshiradi va boshqalar.

Hozirgi davrda o'qituvchilarning yuqori kasbiy tayyorgarlikka, pedagogik mahoratga, yuksak ma'naviy-axloqiy fazilatlarga, mafkura borasida chuqur bilimlarga ega bo'lishi, ta'lim-tarbiya ishlarida zamonaviy pedagogik texnologiyalar, interaktiv usullardan samarali foydalanishi davr talabi hisoblanadi.

Yosh avlodni har tomonlama yetuk, bilimli, yuksak ma'naviyatli, barkamol, vatanparvar shaxslar bo'lib yetishishini ta'minlash yo'lida amalga oshirilayotgan ulkan bunyodkorlik ishlarining eng asosiy bo'g'ini sifatida pedagog xodimlarning yuqori ilmiy, metodik bilimlarga hamda amaliy ishlash bo'yicha yuksak mahoratga

ega bo'lishlarini ta'minlash yuzasidan chora-tadbirlarni amalga oshirish hisoblanadi.

“Maktab, ta'lim-tarbiya masalasi davlat va jamiyat nazoratida bo'lishi Asosiy qonuniyatimizda belgilab qo'yilgan. Shu bilan birga, keng jamoatchilik, butun xalqimizning ishtiroki va qo'llab quvvatlashini talab qiladigan umumiy masaladir”.

Hozirda har bir maktabda ta'lim-tarbiya samaradorligini oshirish jiddiy vazifa bo'lib turibdi. Buning uchun har bir o'qituvchi o'z fanini o'qitishning eng samarali zamonaviy pedagogik texnologiyalarini puxta bilishi va bu sohadagi yangiliklarni uzluksiz o'rganib borishi orqali o'z kasbiy mahoratini muntazam oshirib borishi talab qilinadi.

Ta'lim-tarbiya jarayoni sifati va samaradorligini oshirish kelgusi taraqqiyotimizning asosi ekanligi ma'lum. Bu haqda Prezidentimizning quyidagi so'zlari ibratlidir:

“Shuni unutmasligimiz kerakki, kelajagimiz poydevori bilim dargohlarida yaratiladi, boshqacha aytganda, xalqimizning ertangi kuni qanday bo'lishi farzandlarimizning bugun qanday ta'lim-tarbiya olishiga bog'liq.

Yuqorida aytganimizdek, ta'lim oldiga qo'yiladigan talablar nihoyatda ulkan. Ta'lim jarayoniga ilg'or zamonaviy texnologiyalarni qo'llamasdan turib bu talablarni bajarish amri mahol.

Biz jismoniy tarbiya darslarida zamonaviy texnologiyalardan foydalanish darajasini o'rganish uchun bir guruh jismoniy tarbiya o'qituvchilariga (ja'mi 20 o'qituvchi qatnashdi) quyidagi savollar bilan murojaat qildik:

Ta'limning zamonaviy texnologiyalari deganda nimani tushunasiz?

Siz o'z darslaringizda ta'limning zamonaviy pedagogik texnologiyalardan foydalanasizmi?

An'anaviy ta'lim bilan pedagogik texnologiyalar asosida o'tadigan darslar o'rtasidagi farqni ayting.

Interaktiv metodlarni qanday tushunasiz? Misollar keltiring.

Javoblarni quyidagi mezonlar asosida baholadik:

1. Zamonaviy texnologiyalarni yaxshi tushungan, o'z darslarida qo'llayotgan, uning an'anaviy ta'limdan yaxshi farqlay biladigan va interaktiv metodlarni bilgan bo'lsa “juda yaxshi”;

2. Zamonaviy texnologiyalar haqida tushunchaga ega, undan o'z tajribasida foydalanayotgan va uning an'anaviy ta'limdan farqini bilgan va interaktiv metodlardan ba'zidarini biladigan bo'lsa “yaxshi”;

3. Zamonaviy texnologiyalarni tushunadi, lekin undan ba'zan foydalanadi interaktiv metodlarni yaxshi bilmaydigan bo'lsa “o'rta”.

4. Zamonaviy texnologiyalarni bilmaydi va undan foydalanmadi, ba'zan interaktiv metodlardan foydalanadi "yomon".

Ta'limning an'anaviy metodlarini afzal deb biladi va umuman zamonaviy texnologiyalarga qiziqmaydi "juda yomon".

Javoblar tahlili quyidagi jadvalda ko'rsatilgan:

1-jadval.

Jismoniy tarbiya o'qituvchilarining ta'limning zamonaviy texnologiyalaridan foydalanish darajasi:

(So'ralganlarga nisbatan % hisobida)

/t	"juda yaxshi";	"yaxshi"	"o'rta"	"yomon"	"juda yomon"
	5	10	15	25	45

Jadval tahlili shuni ko'rsatadiki biz tadqiqot olib borgan maktablarning ko'pchiligida zamonaviy texnologiyalar asosida ta'lim jarayonini tashkil etish sust kechmoqda.

Zamonaviy texnologiyalar deganda ko'pchilik maktabda kompyuterlarning yo'qligidan shikoyat qiladilar. Shu bilan ta'limda zamonaviy texnologiyalardan foydalanmayotganlari oqlamoqchi bo'ladilar. Vaholanki, ta'limda pedagogik texnologiyalardan foydalanishning 2 xil usuli bor.

Birinchisi kompyuter texnologiyalarisiz, darslarni loyihalashtirib kafolatlangan natijaga erishish bo'lsa, ikkinchisi, kompyuterlar yordamida darslarni tashkil etish.

Demak kompyuterlarsiz ham zamonaviy texnologiyalardan foydalanib darslarni tashkil etish mumkin.

Darsning xarakterli tomonlari, uning jismoniy tarbiyaning boshqa shakllaridan farqlanishi quyidagilardan iborat.

Aniq ifodalangan, didaktik yo'lantirilganligi, ta'lim vazifasining hal etilishi bilan shartlanganligi.

Predmetni o'rgatish va o'quchilarni tarbiyalashga yo'naltirilgan o'qituvchining rahbarlik roli.

O'quvchilar faoliyatini va yuk me'yorlarini qa'tiy o'rganish va belgilash.

Jismoniy tarbiyani boshqarish va sportni rivojlantirish sohasida mutaxassislar malakasini oshirish hamda kasb mahoratini rivojlantirishning asosiy yo'nalishlaridan biri jamiyatning bozor iqtisodiyotiga o'tish sharoitida muvaffaqiyatli ish olib bora oladigan Respublikamizning yuqori malakali kadrlarga bo'lgan ehtiyojini qondirish hisoblanadi.

Jismoniy tarbiya boshqaruvi sohasidagi xodimning kasbiy faoliyati keng miqyosdagi jismoniy tarbiya ta'lim hududidagi tor doiradagi ixtisoslikdan kelib chiqadigan kasb mahorati va kasbiy ongdan tashkil topadi. Ular optimal darajadagi ruhiy kayfiyat va fiziologik sarflar hisobiga ijobiy natijaga erishish imkonini beradi.

Jismoniy tarbiya mutaxassisining kasbiy muloqoti - bu bilimdonlikning kommunikativ tarkibi bo'lib, kasbiy faoliyatning tanlangan turi uchun xos bo'lgan ishbilarmonlik muloqoti me'yorlarini o'zlashtirishni o'z ichiga oladi (masalan, sharq yakkakurashlari murabbiysi uchun - rus, o'zbek tilida ba'zan ekvivalenta bo'lmagan maxsus atamalarni bilish, ish yuzasidan aloqalar o'rnatish va hamkorlik qila olish, mehnat bozorida raqobatchilikni ta'minlagan holda o'z ishiga qiziqish uyg'ota olish).

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ЗДОРОВЬЕСБЕРЕГАЮЩИЕ МЕТОДИКИ В РАБОТЕ С ДЕТЬМИ МЕДИЦИНСКОЙ ГРУППЫ

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Аннотация. В статье рассматриваются результаты педагогического эксперимента по внедрению в учебный процесс по физическому воспитанию авторской методики здоровьесберегающих технологий с детьми младших классов отнесенных по состоянию здоровья к медицинской группе.

Ключевые слова: *Здоровьесберегающие технологии, педагогический эксперимент, физический статус, мониторинг, двигательная*

подготовленность, соматометрические показатели, стандарт, тест, функциональная подготовка

Стратегическим направлением непрерывного образования является охрана и укрепление здоровья подрастающего поколения. Образовательные учреждения и органы здравоохранения принимают необходимые меры для сохранения и укрепления здоровья детей и учащейся молодежи. Обеспечиваются условия для реализации оздоровительной направленности учебно-воспитательного процесса, внедряются новые здоровьесберегающие технологии в учебном процессе по физическому воспитанию. Совершенствуются организационно-методические подходы к медико—гигиенической культуре обучающихся и их физкультурно-спортивной активности.

Здоровьесберегающая технологизация учебного процесса по физическому воспитанию в системе народного образования представляет собой новое направление в педагогической науке занимающейся конструированием обучающих систем, проектированием учебных процессов, обеспечивающих решение задач воспитания и оздоровления подрастающего поколения.

На современном этапе развития общества явление гиподинамии, как фактор снижения двигательной активности, является серьезной проблемой системы народного образования. Результаты ежегодного мониторинга физического статуса детей и выявленная не прогрессирующая стагнация адаптационных процессов у детей младшего школьного возраста к физическим нагрузкам, вызывает тревогу в связи с удовлетворительными показателями тестовых заданий.

В последние годы в образовательных учреждениях заметно активизировалась работа по формированию здорового образа жизни подрастающего поколения, направленная на создание здоровьесберегающей среды с внедрением в учебный процесс инновационных педагогических технологий. Однако, предпринятые меры по оздоровлению детей в целом существенно не улучшили ситуацию.

По данным проведенного нами ежегодного мониторинга состояния физического статуса детей выявлено, что от 8 до 10% младших школьников имеют различные отклонения в состоянии здоровья, часть из которых по состоянию здоровья целесообразно отнести к специальной медицинской группе.

Разработка и внедрение в учебный процесс эффективных здоровьесберегающих методик направленных на укрепление здоровья детей является актуальным направлением научного поиска.

Приоритетным направлением в сфере школьного физического воспитания является формирование у них здоровьесберегающей образовательной среды, совершенствование содержания и технологий обучения, ориентированных на возрастные особенности детей.

Важнейшим направлением в деятельности общеобразовательной школы должно стать формирование мотивации к осознанию социальных норм здорового образа жизни, уделяя особое внимание внедрению эффективных здоровьесберегающих технологий при проведении различных физкультурно-оздоровительных мероприятий.

Существенным недостатком является то, что реализация вышеизложенных положений на уроках физической культуры, в особенности с детьми младшего школьного возраста невозможна, в связи с тем, что школьники основной и медицинской групп занимаются совместно.

Многочисленными исследованиями по данной проблеме выявлено, что дети отнесенные к медицинской группе имеют отклонения в состоянии здоровья, а значит, фактор гиподинамии у них ведет к сужению диапазона функциональных возможностей и отставание в развитии моторики.

Мониторинг учебного процесса по физической культуре в младших классах выявил, что учитель не может в полной мере реализовать дифференцированный и индивидуальный подход к детям отнесенных к медицинской группе, использовать методы обучения адекватные их индивидуальным особенностям и формам заболеваний.(2.5.6)

В этой связи было разработано здоровьесберегающее сопровождение в процессе физического воспитания младших школьников медицинской группы, предполагающее соблюдение основных положений:

1) при комплектовании детей медицинской группы учитель физической культуры обязан учитывать низкий уровень их физического развития и двигательной подготовленности;

2) уроки физической культуры с детьми данной категории должны проводиться по специально разработанной здоровьесформирующей методике, обеспечивающей, качественное усвоение программного материала и позволяющей корректировать отстающие в развитии двигательные способности.

С целью проверки разработанной здоровьесформирующей методики с младшими школьниками отнесенных к медицинской группе был проведен педагогический эксперимент в течении учебного года и условно разделен на два периода: подготовительный (1 и 2 четверть) и основной (3 и 4 четверть).

Уроки физической культуры проводились по традиционной структуре 2 раза в неделю продолжительностью 40 минут.

В подготовительном периоде решались задачи по формированию у детей навыков здорового образа жизни посредством использования дыхательных упражнений, простейших гимнастических, акробатических и общеразвивающих упражнений, комплекс разработанных упражнений направленных на коррекцию тела и расслабление.

В основном периоде при внедрении в учебный процесс разработанной экспериментальной программы ставились следующие задачи: обучать детей базовым двигательным действиям предусмотренных программным материалом по физическому воспитанию и постепенно повышать их функциональные возможности.

С учетом типа заболеваний определенных на основе медицинского обследования, рекомендовано уроки физической культуры с детьми данной группы, проводить избирательно с заниженными требованиями к выполнению физических напряжений средней интенсивности, удлинением подготовительной части урока и использованием повторного метода.

Эффективность в решении поставленных задач достигалось включением специально подобранных подвижных игр с ярко выраженной эмоциональной направленностью на развитие физических качеств.

Разработанная и экспериментально обоснованная система индивидуальных домашних заданий, позволила сформировать у детей имеющих отклонения в состоянии здоровья самостоятельность и творческое отношение к полученным на уроках физической культуры двигательным умениям и навыкам.

В ходе проведенного поэтапного педагогического эксперимента была выявлена высокая эффективность комплекса разработанных мероприятий здоровьесформирующей направленности.

Повторные результаты проведенного эксперимента у детей выявили достоверное улучшение соматометрических показателей в среднем на 16,4% и существенное снижение заболеваний простудного характера.

Здоровьесформирующая методика проведения занятий с детьми отнесенных к медицинской группе выявила положительную динамику в развитии силовых способностей, гибкости и показателей функционального состояния организма.

По результатам внедрения в учебный процесс разработанных физкультурно-оздоровительных мероприятий для детей, отнесенных по состоянию здоровья к медицинской группе, было выявлено достоверное улучшение изучаемых показателей на 12,1% и по заключению экспертной комиссии школы было получено разрешение на их перевод в основную группу при соблюдении индивидуального контроля на уроках физической культуры.

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1945-1955-YILLARDA O‘ZBEKISTON MAKTABGACHA TA’LIM MUASSASALARINING MOLIYAVIY AHVOLI.

Tishabayeva I

Toshkent axborot texnologiyalari universiteti Farg‘ona filiali O‘zbek tili va gumanitar fanlar kafedrasi dotsenti

***Annotatsiya:** Ushbu maqolada O‘zbekistonda 1945-1955 yillarda maktabgacha ta’lim sohasi faoliyati ilmiy, tarixiy adabiyotlar va manbalar asosida yoritib berilgan. Shuningdek, shahar va qishloq maktabgacha ta’lim muassasalariga ajratilgan mablag‘lar to‘g‘risidagi ma’lumotlar tadqiqot doirasiga tortilgan.*

***Kalit so‘zlar:** budjet, mablag‘, tafovut, nazorat, jixoz, tashkilot, badal puli.*

Mamlakatimizda o‘sib kelayotgan yosh avlodni sog‘lom va har tomonlama yetuk inson sifatida voyaga yetkazish, maktabgacha ta’limning samarali tizimini yaratish borasida keng ko‘lamli ishlar amalga oshirilmoqda. Xususan, davlatimiz rahbari tomonidan bu sohaga oid ko‘plar farmon va qarorlarning qabul qilinishi

maktabgacha ta'lim tizimini e'tiborda ekanidan dalolat beradi [1.]. Zero, ertangi kunimiz va kelajagimiz bugun maktabgacha ta'lim tashkilotlarida tarbiyalanayotgan farzandlarimizga bevosita bog'liqdir.

Xalqimizda yosh avlodga ta'lim va tarbiya berish masalasi qaysi davr bo'lmasin doimo muhim ahamiyat kasb etgan.

O'zbekistonda 1945-1955 yillarda maktabgacha ta'lim muassasalari turli tashkilotlar tomonidan moliyalashtirilgan. Xususan, Xalq ta'limiga qarashli bolalar bog'chalari mahalliy budjetdan, boshqa tashkilotlar qoshida ochilgan bolalar bog'chalari shu tashkilotlar hisobidan moliyalashtirilgan. Masalan, Namangan viloyati Namangan shahar Xalq ta'limiga qarashli 16-maktabgacha ta'lim muassasasi misolida ko'rib chiqadigan bo'lsak, 1955 yilda unga mahalliy budjetdan 26430 rubl ajratilgan bo'lsa, undan 4050 rubli ota-onalar badal puli hisobidan bo'lib, bitta bola uchun bir oylik to'lov 32 rubl 40 tiyinni tashkil etgan [2.].

Qishloq maktabgacha ta'lim muassasalari kolxozlar hisobidan moliyalashtirilgan. Maktabgacha ta'lim muassasalarini ta'minlash uchun ketadigan mablag' kolxozchilarning umumiy yig'ilishida ko'rib chiqilgan va smeta viloyat qishloq xo'jaligi boshqarmasi va kolxoz boshqaruvi (pravleniesi) tomonidan tasdiqlangan. Maktabgacha ta'lim muassasalarini xo'jalik –moliyaviy faoliyatini boshqarish hamda nazorat qilish kolxoz, tuman va viloyat qishloq xo'jaligi boshqarmalari tomonidan amalga oshirilgan. Bog'chalarni moddiy bazasini mustahkamlash va oziq-ovqat bilan ta'minlash kolxoz vakillari zimmasiga yuklatilgan [3.]. Lekin shunga qaramay, kolxoz va sovxozlar maktabgacha ta'lim muassasalarining jihozlanishiga yetarli e'tibor bermagan. Barcha mavsumiy bolalar bog'chalarida yumshoq va qattiq inventarlar, sochiqlar, oshxona jihozlari, o'yinchoqlar yetishmagan. Mavsumiy bolalar bog'chalari uchun ajratilgan smetalar kolxozchilarning umumiy yig'ilishida tasdiqlanganicha qolib ketgan. Xususan, 1948 yil Namangan viloyati Chust tumanidagi barcha bolalar bog'chalarida stol va stullar, krovatlar, ovqatlanish uchun idishlar yetishmagan. 246 ta brigada va 19 ta kolxozda tashkillangan ko'chma brigada maydonchalarida 2467 nafar bola tarbiyalangan. Lekin ko'chma brigada bolalar maydonchalari uchun stol stullar ajratilmagan. Daraxtlarni tagiga bittadan palas solingan xolos [4]. Namangan shahridagi 8-bolalar bog'chasida idishlar yetishmaganidan bolalar yarim litrlik bankalarda choy ichishgan [5.] Barcha maktabgacha ta'lim muassasalarida qattiq va yumshoq inventarlar, idishlar, o'yinchoqlar yetishmagan.

1945 yilda Andijon viloyati arxivi o'rganilganda shahar va qishloq bolalar bog'chalariga ajratilgan mablag'larda katta tafovut borligi ko'rinadi. Xususan, Andijon shahar bolalar bog'chalarining jihozlash uchun 135 rubl, Voroshilov,

Izboskan tumanlari bog'chalarining jihozlariga 27 rubldan, Jalaquduq tumaniga 30 rubl, Oltinko'l, Baliqchi tumanlari bog'chalarining jihozlariga 6 rubldan mablag' ajratilgan. Xuddi shu kabi, 1946 yilda Andijon viloyati mahalliy budjetdan viloyat maktabgacha ta'lim sohasi uchun jami 2006 rubl ajratilgan bo'lsa, uning 194 rubli jihozlar sotib olish uchun, 70 rubli mukammal ta'mirlash uchun ajratilgan [6]. Shundan, shahar bolalar bog'chalari uchun 103 rubli jihozga, 40 rubli ta'mirlash ishlariga ajratilgan bo'lsa, qishloq bolalar bog'chalariga 91 rubl jihozga va 30 rubl ta'mirlash ishlariga mo'ljallangan. Masalan, Xo'jaobod tumani, Paxtaobod tumani, Voroshilov tumani, Baliqchi tumanlariga 5 rubldan mablag' ajratilgan [7]. Bitta tuman maktabgacha ta'lim muassasalarining ta'mirlash ishlariga atigi 5 rubldan ajratilgan xolos. Ayrim tumanlarga esa mablag' umuman berilmagan.

Xulosa qilib shuni aytish mumkinki, O'zbekistonda sovet hokimiyati yillarida maktabgacha ta'lim muassasalariga moliyaviy mablag'lar ajratish bir necha tashkilotlar tomonidan amalga oshirilgan. Yirik zavod va fabrikalar homiylik qiladigan zamonaviy ko'rinishdagi bolalar bog'chalariga ko'proq mablag' ajratilishi natijasida faoliyati namunali holatda bo'lib, bu kabi bog'chalarga talab nihoyatda baland bo'lgan, ya'ni, 1 o'ringa 8 nafardan 10 nafargacha bolalar to'g'ri kelgan. Qishloq aholisi maktabgacha yoshdagi bolalarining asosiy qismi kolxoz bolalar maydonchalari va ko'chma yaslilarga qamrab olingani hisobga olinsa, bu kabi maktabgacha ta'lim muassasalariga eng kam mablag' ajratilib, ularning faoliyati va sanitar holati talablarga javob bermagan.

Foydalanilgan manba va adabiyotlar ro'yxati:

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2. *NVDA, 12-fond, 2-ro'yxat, 47-ish, 87-varaq.*
3. *Maxmudova S. Doshkolnye uchrejdeniya kolxozov. //Selskoe xozyaystvo Uzbekistana. – 1975. – №1. B.60.*
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5. *NVDA, 505-fond, 1-ro'yxat, 291-ish, 64-varaq.*
6. *AVDA. 505-fond, 1-ro'yxat, 28-ish, 4-varaq.*
7. *AVDA. 505-fond, 1-ro'yxat, 28-ish, 136-varaq.*

THE ROLE OF SMART EDUCATIONAL TECHNOLOGIES IN ESP LESSONS

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Abstract: *This article explores the transformative impact of smart educational technologies on English for Specific Purposes (ESP) lessons. It highlights how these technologies enhance personalized learning, engagement, and access to authentic materials. Smart tools, such as AI-driven platforms, virtual reality, and adaptive learning systems, enable tailored instruction, immediate feedback, and autonomous learning, catering to the specific linguistic needs of professionals in various fields. The integration of these technologies promotes collaboration, communication, and skill development in real-world contexts. While challenges such as access to technology and teacher training exist, the benefits far outweigh the limitations, making smart educational technologies a vital component of modern ESP instruction.*

Keywords: *Smart educational technologies, English for Specific Purposes (ESP), personalized learning, adaptive learning systems, virtual reality, autonomous learning, professional communication, language instruction, immersive learning.*

In recent years, the rapid integration of smart educational technologies into teaching and learning environments has transformed various aspects of education, particularly in specialized language instruction, such as English for Specific Purposes (ESP). ESP lessons, which focus on equipping learners with the English skills required for specific professional or academic fields, have significantly benefited from the incorporation of smart technologies. These innovations not only enhance the overall effectiveness of ESP instruction but also personalize the learning experience to meet the unique needs of individual students.

1. Personalized Learning Paths. One of the key advantages of smart educational technologies in ESP lessons is the ability to offer personalized learning experiences. Traditional classrooms often struggle with catering to the diverse needs of students, particularly in ESP courses, where learners come with different levels of proficiency and distinct professional goals. Smart technologies, through adaptive learning systems and AI-driven platforms, can assess individual learners' strengths, weaknesses, and learning preferences. These systems then generate personalized content and learning pathways, allowing students to focus on areas that are most relevant to their needs, such as industry-specific vocabulary, writing tasks, or listening exercises tailored to their profession.

For example, a student studying English for engineering may need to focus on technical jargon, while a student in hospitality might require conversational fluency and cultural nuances. Smart educational tools like language-learning apps or platforms equipped with AI ensure that learners receive custom-tailored materials, making the learning process more efficient and effective.

2. Enhanced Interaction and Engagement. ESP lessons often require a high degree of interactivity, as students must practice using language in real-world contexts. Smart educational technologies facilitate interactive learning by offering a variety of engaging formats, such as simulations, virtual reality (VR) environments, and gamified learning platforms. These tools allow students to immerse themselves in realistic, profession-specific scenarios where they can apply the language skills they've acquired.

For instance, a medical ESP lesson could involve a VR simulation where students practice patient interactions, diagnosis discussions, or emergency protocols. Such immersive learning opportunities provide students with the chance to develop not only language proficiency but also professional skills in a risk-free, controlled environment. Additionally, these interactive technologies increase student engagement, motivation, and retention of complex subject matter.

3. Access to Authentic Materials. Smart technologies also make it easier for ESP instructors to integrate authentic materials into their lessons. Access to real-world content, such as professional documents, industry reports, and recordings of field-specific conversations, is crucial in ESP courses. With the help of digital platforms, teachers can curate relevant materials that directly reflect the learners' target field, ensuring that students are exposed to the type of language they will encounter in their professional lives.

Furthermore, smart technologies enable teachers to update content in real-time, keeping the learning materials relevant and up-to-date with the latest developments in the learners' industries. Online databases, professional blogs, webinars, and podcasts can easily be incorporated into lessons, ensuring that students are not only learning the language but also gaining industry-specific knowledge simultaneously.

4. Immediate Feedback and Autonomous Learning Incorporating smart educational tools into ESP lessons offers the advantage of immediate feedback. Whether through language learning apps, online quizzes, or AI-powered tutoring systems, students can receive instant responses to their tasks, allowing them to correct errors and learn from their mistakes without delay. This form of real-time feedback is particularly beneficial in ESP, where the timely acquisition of specific skills is often critical for career advancement.

Moreover, smart technologies promote autonomous learning by giving students access to resources and exercises they can engage with at their own pace. Many smart platforms provide self-assessment tools, enabling learners to monitor their progress and identify areas that need improvement. This independence in learning is particularly useful for ESP students who may be professionals juggling education with work responsibilities. They can access learning materials outside the classroom at times convenient to them, ensuring a flexible and continuous learning process.

5. Collaboration and Communication. Another significant advantage of smart educational technologies in ESP is the ability to foster collaboration and communication among learners. ESP often involves group work, simulations, and discussions related to professional tasks, making collaborative learning an essential part of the curriculum. Digital platforms, such as collaborative workspaces and online forums, enable students from different locations or industries to engage in discussions, share resources, and collaborate on projects.

For example, a group of business professionals learning English for international trade could collaborate on a negotiation simulation, each taking on different roles within the scenario. Such collaborative environments help students practice the communicative aspects of language that are critical for their future workplaces, such as team communication, presentations, and negotiations.

6. Challenges and Considerations. While smart educational technologies offer a myriad of benefits to ESP lessons, it's important to acknowledge the challenges they may pose. Access to technology can be a barrier in some educational settings, particularly in regions or institutions with limited infrastructure. Additionally, instructors need to be adequately trained to use these technologies effectively to enhance learning outcomes.

Another consideration is the potential over-reliance on technology, which may limit face-to-face interaction, a key component in language learning. To balance this, educators should aim for a blended approach that incorporates both smart educational tools and traditional teaching methods to create a well-rounded learning experience.

Smart educational technologies are playing an increasingly pivotal role in ESP lessons, revolutionizing the way specialized English is taught and learned. Through personalized learning, enhanced engagement, access to authentic materials, immediate feedback, and collaborative opportunities, these technologies cater to the specific linguistic and professional needs of learners. As technology continues to advance, it will further enrich ESP instruction, making it more effective, flexible, and aligned with the demands of various industries. By

integrating smart tools into the classroom, ESP instructors can better prepare their students for the language challenges of the professional world.

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ПРОБЛЕМЫ ПРЕЕМСТВЕННОСТИ НОРМАТИВНОГО СОДЕРЖАНИЯ ГОСУДАРСТВЕННОЙ ПРОГРАММЫ ПО ФИЗИЧЕСКОМУ ВОСПИТАНИЮ В СИСТЕМЕ ОБЩЕОБРАЗОВАТЕЛЬНЫХ УЧРЕЖДЕНИЙ

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Аннотация. В статье приводятся экспериментальные данные по разработке и внедрению в практику новых методологических основ повышения физической подготовленности различных возрастных категорий учащихся общеобразовательных школ путем выполнения

комплекса специальных физических упражнений на авторской конструкции во внеурочных занятиях по физической культуре.

Ключевые слова: *Двигательная активность, физическое воспитание, внеурочные занятия учащихся, комплекс специальных физических упражнений.*

Введение. В настоящее время, в связи с недостаточностью двигательной активности учащихся и связанной с ней увеличением случаев заболевания, в борьбе с данным явлением важное место отводится совершенствованию процесса физического воспитания и, тем самым, решению на научной основе необходимых требований воспитания здорового и крепкого молодого поколения, готового бороться с ним, а также важную роль играет укрепление здоровья и повышение уровня умственного развития детей. Данные вопросы имеют особое значение не только в развитии физических качеств учащихся, но и в улучшении их физических возможностей, повышении эффективности правильного использования внеурочных занятий по физическому воспитанию. Поэтому во многих странах остаются проблемой вопросы разработки новых методологических основ повышения физической подготовленности учащихся путем выполнения различных двигательных действий и специальных физических упражнений, а также привлечения их к внеурочным занятиям по физической культуре.

В целях разрешения данной проблемы в разных странах мира проводятся исследования по обеспечению повышения физической подготовленности, оздоровления и всестороннего физического развития учащихся. При этом создание научной базы для повышения физической подготовленности и укрепления здоровья учащихся общеобразовательных школ в процессе внеурочных занятий имеет важное значение.

В общеобразовательных школах Узбекистана особое внимание уделяется вопросам физического воспитания учащихся, целью которого является повышение двигательной активности детей, оказание практической помощи в обеспечении их оздоровления и всестороннего физического развития, предусмотрено "...проведение научно обоснованных, а также методически обоснованных регулярных внеурочных занятий по физической культуре для повышения уровня физической подготовленности учащихся". Для достижения успехов в таких занятиях необходимо не только формирование у учащихся способности сохранения физической активности, но и обучить их к пониманию классификации нагрузок по аэробным и анаэробным зонам интенсивности. Для этого нужно рационально организовать учебный процесс по физической культуре в

общеобразовательных школах, обеспечить проведение регулярных внеурочных занятий, направленных на повышение уровня физической подготовленности учащихся.

Цель исследования – теоретическое и экспериментальное обоснование методики повышения физической подготовленности учащихся в процессе внеурочных занятий по физическому воспитанию в общеобразовательных школах.

Исходя из цели исследования были поставлены следующие задачи: выявить проблемы компенсации недостаточности двигательной активности учащихся образовательных школ и способы разрешения их во время внеурочных занятий по физическому воспитанию; разработать и внедрить в практическую деятельность спортивную конструкцию “Четырехуровневая лестница для занятий физическими упражнениями” для повышения уровня физической подготовленности учащихся общеобразовательных школ во время внеурочных занятий по физическому воспитанию.

Результаты и их обсуждение. С целью достижения поставленных задач, нами были определены: прямой путь – сводящийся к непосредственному решению специфических задач физического воспитания и являющийся самостоятельной образовательной программой и косвенный путь – характеризующийся акцентированной направленностью на формирование у них научно обоснованного мировоззрения, системой теоретических знаний, умений и навыков, необходимых для организации и проведения самостоятельных занятий физическими упражнениями.

Результаты проведенного нами анкетирования среди учителей физического воспитания, работающих в сельских общеобразовательных школах Ферганской области (все респонденты имеют высшее физкультурное образование, стаж педагогической работы: до 5 лет - 40,3 %, до 10 лет - 28,8%, до 15 лет - 12,6%, до 20 лет - 10,7%, свыше 20 лет - 7,6%) позволил расширить круг целей и задач, влияющих на совершенствование содержания и методики обучения учащихся в режиме дня школьного звена образования, выявить положительные изменения в системе школьного образования, направленных на оздоровление подрастающего поколения.

Анализ состояния материально-спортивной базы общеобразовательных школ для проведения базовых занятий по физическому воспитанию и физкультурно-оздоровительных мероприятий с учащейся молодежью показал, что 67,4% школ области имеют удовлетворительные условия для проведения учебной и физкультурно-спортивной работы, относительно хорошие условия в 14,8% и слабая материальная спортивная база выявлена в

26,7% школ, что не способствует проведению на высоком методическом уровне базовые занятия и физкультурно-оздоровительные мероприятия.

Результаты предварительного исследования свидетельствуют о том, что педагогическая деятельность в области физического воспитания в общеобразовательных школах не позволяет в полной мере использовать имеющиеся возможности для целенаправленной физической подготовки учащихся. Анализ учебных программ по физическому воспитанию в общеобразовательных школах выявил, что практически на всех занятиях преобладает практическая физическая подготовка.

В Государственной программе на базовые занятия по физическому воспитанию в общеобразовательных школах отводится 68 часов, включающих теоретическую и практическую подготовку. Как основной раздел программы включены легкая атлетика и гимнастика, дополнение к улучшению двигательного потенциала представлены такими видами спорта как футбол, баскетбол, волейбол, гандбол, фитнес, а также учащиеся знакомятся с навыками движения, командной работы и спортивного мастерства. Шахматы не являются физической деятельностью, они обеспечивают умственные упражнения и улучшают навыки критического мышления.

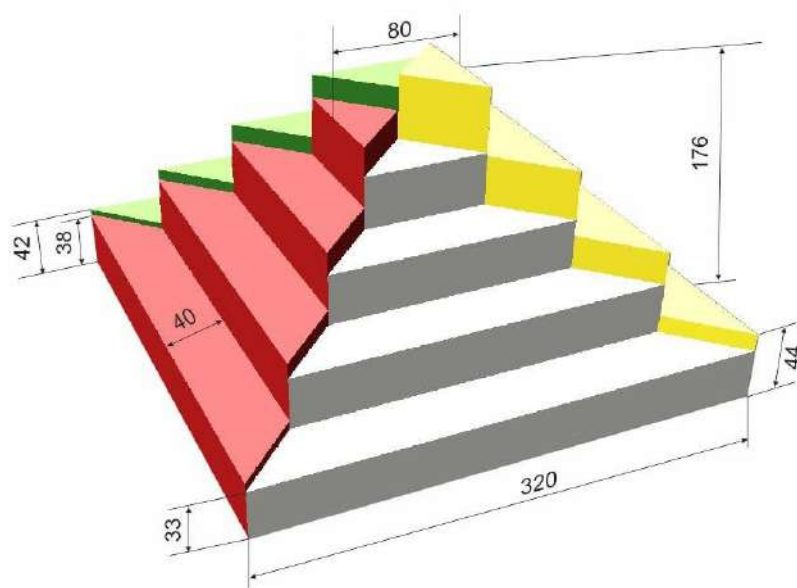
Токовое положение, свидетельствует о том, что отсутствует возможность проведения базовых занятий и физкультурно-оздоровительных мероприятий с учащейся молодежью на высоком методическом уровне.

В целях решения вышеприведенных задач, нами была разработана “Интеграционная модель физического воспитания для всех возрастных категорий учащихся”, направленная на оптимизацию и повышение эффективности физической подготовленности учащихся, а также стандартной программы по физическому воспитанию всех звеньев общеобразовательной системы. Модель способствует анализу текущего нормативного содержания программы по физическому воспитанию, разработке научно обоснованных рекомендаций, повышению знаний, активности, физической подготовленности и улучшению здоровья учащихся путем внедрения инновационных стратегий и подходов.

В состав данной модели включена разработанная нами конструкция “Четырех уровневая лестница физических занятий” (Патент № сап02411 Министерства юстиции Республики Узбекистан), которая предназначена для поэтапного и эффективного повышения уровня физической подготовленности, а также улучшения двигательной активности учащихся в соответствии с их физическими способностями и потребностями с учетом

возрастной категории в рамках программы по физическому воспитанию (см.рис.1).

Рисунок-1. Вид конструкции “Четырех уровневая лестница физических



занятий”

На конструкции одновременно могут заниматься 20-25 учащихся. Данная конструкция сооружена в форме четырехугольника и разделена на 4 разноцветные уровни, где выполняется работа в четырех зонах с учетом возрастной категории учащихся (7-9, 10-12, 13-15, 16-17 лет). Разработанный для данной категории учащихся комплекс упражнений классифицируется по оптимальному уровню влияния на тело и развитию необходимых навыков у учащихся. В качестве примера, в таблице-1 приведен комплекс специальных упражнений для учащихся 7-9 лет, для других возрастных групп также разработаны комплексы упражнений с учетом их возрастного развития.

В результате применения конструкции “Четырех уровневая лестница физических занятий” в процессе внеурочных занятий по физическому воспитанию, поэтапного и эффективного выполнения учащимися различной возрастной категории комплекса упражнений в соответствии физическим способностям и потребностям улучшились показатели двигательной активности и уровень физической подготовленности.

В частности, зарегистрированные основные статистические показатели по четырем тестам (“Челночный бег 3x10 м”, “Бег 30 м”, “Прыжок в длину с места”, “Сгибание и разгибание рук в упоре лежа”), характеризующим физические качества силы и скорости подтвердили статистическую достоверность их абсолютного и относительного роста: в экспериментальной группе показатели относительного роста 8 летних учащихся по сравнению с

7 летними составили – 4,72% (в контрольной группе – 3,30% или на 1,42% ниже); у 17 летних учащихся по сравнению с 16 летними составили – 9,05% (в контрольной группе – 6,39% или на 2,66% ниже) (см.рис.2).

Выводы. В результате внедрения в процесс внеурочных занятий по физическому воспитанию (3 раза в неделю) учащихся сельских общеобразовательных школ Ферганской области конструкции “Четырех уровневая лестница физических занятий” расширена возможность повышения двигательной активности всех возрастных категорий учащихся. Дифференцированный подход к организации физического воспитания учащихся различных возрастных категорий позволил улучшить состояние здоровья детей. В ходе двухлетних формирующих экспериментов статистически достоверно снизилось число заболевших учеников (от 22,5% до 3,7% согласно классу заболеваний), доля физически развитых детей увеличилось – на 14,5%, доля детей с соответствующими нормативными показателями осанки увеличилось – на 8,9%, индекс здоровья – на 9%, количество младших школьников, имеющих функциональные отклонения снизились – на 17,2%.

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REKLAMA DISKURSINING PRAGMATIK XUSUSIYATI

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Abstrakt. Taqdim etilgan tadqiqotning dolzarbligi zamonaviy tilshunoslikning til hodisalarini pragmatik jihatdan o'rganishga antropotsentrik yondashuv bilan bog'liq. Maqolaning maqsadi reklama diskursining pragmatik xususiyatini aniqlashdir. Ham o'zbek, ham chet ellik tadqiqotchilarning asarlari, shuningdek tanlangan materiallarning tahlili reklama diskursi ishtirokchilari oldindan tayyorlangan matnlar orqali bir-biri bilan yaqin aloqada bo'lishadi degan xulosaga kelish imkonini berdi; matnlar reklama xususiyatlariga ko'ra tanlangan verbal va noverbal vositalar to'plami tomonidan amalga oshiriladigan ma'lum pragmatik maqsadga ega.

Key words. reklama, diskurs, pragmatika, verbal and noverbal vositalar

Kirish

Zamonaviy tilshunoslikda diskurs tadqiqotning markaziy birligi sifatida tan olingan. Turli jihatlar va yondashuvlarda o'rganilgan reklama diskursi tadqiqotning eng asosiy va istiqbolli ob'ektlaridan biri. Matnga natija, diskurs mahsuli sifatida yondashish orqali reklama matni nima ekanligini, uning lingvistik-kognitiv va pragmatik tarkibiy qismlari nima ekanligini, qabul qiluvchiga samarali ta'sir ko'rsatish uchun til belgisining semantik tarkibining intensivligini oshiradigan lingvistik vositalar majmuasi nima ekanligini aniqlash zaruratiga duch kelamiz. Yuqorida aytilganlarning barchasi zamonaviy tilshunoslikning lingvistik hodisalarini pragmatik jihatdan o'rganishga antropotsentrik yondashuv ushbu maqolaning dolzarbligini belgilaydi. Biz reklama diskursini o'rganishga kompleks yondashuvni taklif etiladi:

qabul qiluvchining qabul qiluvchiga pragmatik yo'nalishi bilan murakkablashgan tizimli va tarkibiy tavsif nuqtai nazaridan yondashuv. Ya'ni, ichki tilshunoslikdan tashqariga chiqish amalga oshiriladi, inson omili hisobga olinadi, ularsiz diskursni o'rganish mumkin emas. Xabarni yaratish va idrok etishning asosiy vositasi bo'lgan reklama diskursining tili nafaqat adresant va adresat o'rtasidagi aloqa vositasi, balki bilish va ta'sir qilish vositasidir. Reklama nutqining asosiy maqsadi sifatida ta'sir uning pragmatik yo'nalishi bilan belgilanadi.

Ushbu maqolaning metodologik va falsafiy asoslari nutq ta'sirining diskurs nazariyasi, matnlarni lingvistik tahlil qilish, reklama nutqini o'rganish, reklama tilini o'rganish sohasidagi mahalliy va xorijiy tilshunoslikning taniqli vakillarining

asarlari (A. G. Babaeva, E. S. Kubryakova, yu. S. Stepanov, Z.Xarris va boshqalar).

Materiallar va usullar

Tadqiqot materiallari tashqi reklama matnlari va television reklamalar. Tadqiqot davomida quyidagi usullardan foydalanilgan: lingvistik hodisalarni kuzatish, tahlil qilish va keyinchalik tasniflashga asoslangan tavsiflovchi usul; tashqi reklama matnlarining lingvistik usullarining o'xshashligi va farqlarini aniqlashdan iborat qiyosiy usul.

Natijalar va muhokama

Avvalo reklama diskursi tadqiqiga chuqur kirishishdan avval reklamani o'z mohiyatiga to'xtalsak, A.Ustinov reklamani pragmatik xususiyatlarini aks ettirgan holda shunday fikr bildirgan: "Reklama — bu reklama beruvchiga kerakli tanlov va xatti-harakatga undash maqsadida iste'molchilarning ommaviy va individual ongiga psixologik ta'sir ko'rsatadigan mahsulotlar, xizmatlar, g'oyalari haqidagi reklama beruvchi tomonidan to'plangan axborotga to'la ta'sirchan bir yo'nalishli noshaxsiy xarakterga ega matnlar yaratiladigan va tarqatiladigan ommaviy matbuotning shakllaridan biridir" — deya ta'kidlagan. Aynan diskurs matnini doimiy ravishda kognitiv qayta ishlash natijasida tinglovchi haqiqiy yoki xayoliy dunyoning qaysi qismi so'zlovchi tomonidan tasvirlanishi va nima uchun bu uning uchun juda muhim bo'lishi kerakligi to'g'risida o'z xulosalarini chiqaradi. Diskursda "muhim olamlardan" biri aks ettirilgan, qurilgan va buni amalga oshirish va so'zlovchining niyati va uning mentalitetini gavdalantirish uchun maxsus til vositalaridan foydalaniladi"⁷.

Retsipientni ishontirish uchun eng yaxshi ta'sir qiluvchi til vositalarini tanlash reklama diskursining pragmatik yo'nalishi bilan belgilanadi, bu matn hosil qiluvchi belgi sifatida ishlaydi. Reklamadagi pragmatikaning asosiy xususiyati uning adresatni reklama mahsulotlarini sotib olishga undashiga qaratilgan. "Reklama xodimlari oldida turgan pragmatik vazifalar odamlarni reklama qilinadigan mahsulotlarni sotib olishga yoki xizmatlardan foydalanishga undash

⁷ Kubryakova, E.S. (2004). *Yazik i znaniye: Na puti polucheniya znaniya o yazike: Chasti rechi s kognitivnoi tochki zreniya. Rol yazika v poznanii mira* [Language and knowledge: On the way

of getting knowledge of a language: Parts of speech from cognitive point of view. Role of a

language in world cognition]. Russian Academy of Science. Language Institute. M.: Yaziki

slavyanskoi culture, 560. (In Russ.).

tadqiqotchiga kommunikantlar oldida turgan haqiqiy vazifalarni ko'rib chiqishga yordam beradi".⁸ Reklama tayyorlovchilari oldida asosiy vazifa – mijozni nafaqat taklif etilayotgan tovarlar yoki xizmatlarni sotib olish yoki foydalanishga undash balkim reklamalar uni kuzatuvchilarni yaxshi maqsadlar shakllantirishga, amalga oshirishlariga xizmat qilishi kerak. Reklamalardagi presuppozitsiyaga ba'zi misollar:

Mediapark bozoriga xush kelibsiz!

Endilikda savdolashib xarid qilish mumkin.

presuppozitsiya: Hozirda bozorga o'xshash sharoitlar yaratilgan oldinlari unaqa bo'lmagan! "Mediapark"ning afzallik tomoni reklama qilinmoqda. Bundan tashqari payt ravishi orqali umumiy paytga qarama-qarshi bo'lgan paytning ham ifodalanishiga guvoh bo'ldik:

"Artel together forever" — doimo birga! (Artel uz. Sayti 13.10.2018)
presuppozitsiya: Payt ravishi o'z antonimiga ishora qilyapti, ya'ni Artel Simi hech qachon tark etmaydi, buzilib qolmaydi.

"Fastum gel" doimiy hamrohimga aylandi!

Ushbu reklamada "doimiy" payt ravishi asosli yasama sifat orqali shu mahsulotga variantdosh bo'lgan boshqa mahsulotlarga " hech qachon" ehtiyo bo'lmashligi, ya'ni ushbu tovar har tomonlama iste'molchining talabini qondira olishini anglashimiz mumkin.

Shuningdek, ravishlarning ma'no turlaridan holat ravishlari ham presuppozitsiyaga xizmat qilib, shu holatga zid bo'lgan vaziyatni idrok qilishga va ushbu mahsulotning qarama-qarshi holatga nisbatan ancha afzal ekanligini ifodalovchi presuppozitsiyani anglashimizga xizmat qiladi. Presuppozitsiya hodisasi matndagi inkor mazmunidagi propozitsiyani tasdiq mazmuni yoki tashqi mazmunidagi propozitsiyaning inkor mazmunini ifoda etish uchun xizmat qiladi. U.Raximov presuppozitsiyalar leksik birliklarning omonimik, sinonimik, antonimik xususiyatlari asosida belgilanishini ta'kidlab, quyidagi misollarni beradi. Masalan, "toza" so'zining gap ichidagi xususiyatidan "kirlik" to'g'risidagi presuppozitsiya anglashilishi mumkin. Adolat kelib yotoqxon ham toza bo'lib qoldi gapidan "yotoqxon avval iflos bo'lgan" degan presuppozitsiyani tushunish mumkin.

"Oson kiyish. Qulay va quruq o'ynash! ("Lalaku tagliklari ")
Presuppozitsiya: Qiyinkiyiladigan tagliklar ham mavjud!

⁸ Rechevoe vozdeistvie v sfere massovoi kommunikatsii (1990) [Verbal effect in mass media]
Ed. Berezina, F.M, Tarasova, E.F. M.:Nauka, 135. (In Russ.)

"Sante Baby" cho 'milish vositasi chaqaloqlarga quvonch va zavq bag'ishlaydi, tinchlantiradi va tezroq uxlashga yordam beradi, faol o 'yin va hayajonli sarguzashtlarga boy kundan keyin sog 'lom uyqu.

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REKLAMA DISKURSINING FONOLOGIK, MORFOLOGIK XUSUSIYATLARI TAHLILI

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Abstrakt: So'nggi o'n yillikda jahon tilshunosligida reklamaning lingvistik va diskursivlik xususiyatlari muhim tadqiqot ob'ektiga aylangan va tilning turli sathlarida reklama tadqiq qilinmoqda. Marketing sohasida ilg'or texnologiyalarning jadal sur'atlarda o'sishi reklama janrining rivojlanishiga olib keldi. Hozirgi globallashuv sharoitida reklama kompaniyalari o'z mahsulotlarini raqobatchi kompaniya mahsulotlaridan farqli xususiyatlarini ko'rsatish va xaridor e'tiborini tortish maqsadida tilning turli vositalaridan foydalanmoqdalar. Maqolda reklamalarning fonologik, morfologik lingvistik xususiyatlari misollar bilan beriladi.

Kalit so'zlar: diskurs, pragmatika, reklama, fonologik xususiyat, morfologik xususiyat

Vikipedia entsiklopediyasi ma'lumotlariga ko'ra, reklamaning paydo bo'lishi qadimgi davrlarga borib taqaladi. Reklama xabarlarining birinchi shakllari og'izdan og'izga uzatilgan, ammo Italiyaning qadimgi Pompey shahri xarobalaridan tijorat xabarlar va saylovoldi tashviqot namoyishlari namunalari topilgan. Misrliklar savdo-sotiq bilan bog'liq xabarlar va katta hajmdagi e'lonlarni yozish uchun papirus qog'ozlaridan foydalangan bir davrda Yunoniston va Rimda yo'qolgan buyumlarning topilganligi e'lonini yozishda ushbu qog'oz turidan foydalanish keng tarqalgan edi.

Zamonaviy reklama sari birinchi qadam XV-XVI asrlarda bosmaxonalarning rivojlanishi bilan qo'yildi. O'n yettinchi asrda London haftalik gazetalarda reklamalar e'lon qilina boshlandi va o'n sakkizinchi asrga kelib bunday reklamalar yanada ravnaq topdi .

So'nggi yillarda reklama nashrlarining hajmi tobora ortib bormoqda. Hozirgi globallashuv sharoitida reklama shiddat bilan inson hayotining barcha jabhalariga kirib bormoqda. Reklama hodisasini tadqiq qilishda turli fan mutaxassislari tomonidan keng qamrovli ishlar olib borilmoqda. Ingliz tilshunosligida M.Agraval, G.Kuk, S.Briri, T.K.Bxatia, R.Uvayt, A.Krishna, R.Aluvalia, J.Liich, J.Xornikslar , rus tilshunosligida O.V.Anderson, D.E.Rozental', N.N.Koxtev, I.Ya.Rashkov, T.B.Kolishkina, Ye.V.Medvedeva, E.V.Bulatova, G.Litvinova, E.Anasimova, O.V.Anderson, L.Maevskaya, Ye.A.Terpugova va boshqa ko'plab olimlarning

tadqiqotlarida reklama matnining nazariy va amaliy masalalari, lingvistik jihatlari ma'lum darajada o'rganilgan.

Angliyalik tilshunos olim D.Kristal reklama matnining grafik (imlo) xususiyatlarini quyidagicha ta'riflagan: "Reklama – bu o'ziga xos bosma harflar, sahifa dizayni, intervallar kabi omillar, illyustratsiya va ranglardan foydalanishdan iborat bo'lgan yozma nutq tilining umumiy taqdimoti va tuzilishidir ". Hattotlik uslubini tanlash, harf o'lchami, noan'anaviy imlo va faqat katta (bosh) harflar reklamaning o'ziga xos grafikasi hisoblanadi. Misol uchun:

1. BMW. FASTERPIECE. Designed For Driving Pleasure.
2. Nourishing MEAT. Protein – Family style!

Yuqoridagi birinchi reklama matnida muallif avtomobil markasiga urg'u berish uchun va FASTERPIECE e'tiborni tortuvchi, o'ziga xos alohida xususiyatini tavsiflash uchun katta harflardan foydalangan. Designed For Driving Pleasure – rohatlanib haydang ma'nosidagi iborani esa kursiv qilib yozgan. Brendning xususiyatlarini ko'zga darhol tashlanishiga e'tibor qaratgan. Ikkinchi go'sht mahsuloti reklamasi matnida mahsulot nomini reklama shiorining bir qismiga aylantirish maqsadida nostandart imlodan foydalanilgan. Reklama dizaynerlari nostandart uslub, o'ziga xos imlo shaklidan tovar nomining darhol e'tiborni tortishi, odamlar har kuni xarid uchun boradigan joy, mahsulotning esa kundalik iste'mol uchun kerakligini eslab qolishlari uchun qo'llaydilar.

Reklama tashviqotlarida imloning g'ayritabiiy uslublaridan foydalanish, ingliz tilida ifodalanganiday "standard deviance" (standart og'ish, marketing olamida keng qo'llaniladigan termin) reklama matni uchun oddiy holat hisoblanadi.

Reklama matnining leksik xususiyatlari inson ongiga tez ta'sir etadigan so'zlardan foydalanish bilan bog'liq. Reklama diskursida leksikaning ta'sirli ifodalanishi xususiyati, ishontirish elementlarining mavjudligiga har doim e'tibor qaratiladi. Masalan, oziq-ovqatlarning har doim "nozik ta'm" (tender), mevasabzavotlarning "sersuv"ligi (juicy); kosmetika vositalarining terini ajoyib "parvarish"lashi (caressingly), "joziba" baxsh etishi; avtomobillarning "ravon tezlik" (sleep speed) ma'nosini ifodalovchi so'zlar deyarli taklif va tavsiflovchi bo'lib, ko'pincha o'ylab chiqarilgan va bo'rttirilgan qo'shma sifatlardan tashkil topgan bo'ladi. Ushbu ma'lumotkarga qo'shimcha sifatida "tanlash imkoniyati" (big choice), "tanlash huquqi" kabi so'zlarning ham ko'p ishlatilishiga ahamiyat berdik.

Reklama sohasi ijodkorlari qaysi so'zlarning aynan qaysi mahsulot reklamasiga mos kelishi va kutilmagan vaziyatlarda qo'llanilishi kerakligi haqida

aniq fikrga ega bo'ladilar. Shuningdek, mahsulot nomiga mos keladigan "toza, ajoyib, musaffo, qarsildoq, katta" kabi sifatlardan foydalanishni afzal ko'radilar.

Bundan tashqari, reklama beruvchi mahsulotini targ'ib qilmoqchi bo'lganida, har doim yoqimli chorlovchi ma'noga ega so'zlarni tanlaydi, salbiy ma'no ifodalovchi so'zlarning ishlatilishiga yo'l qo'ymaydi. Bunday yondashuv iste'molchini qiziqтира oladi va e'tiborini tortadi. Masalan, keling, qarang, tanlang kabi so'zlar. Reklama biznesi ingliz tilida juda ko'plab neologizmlarning paydo bo'lishiga sabab bo'lgan. V.Fromkin "So'zlar biror bir maqsadda yaratilishi mumkin" degan fikrni ilgari suradi. Masalan, Post-it, Velcro, Biro and Frisbee. Lotin, yunon va boshqa chet tillar vositasida paydo bo'lgan "Exxon, Kodak, Xerox, Verizon, Adidas, Google, Pixar, Vaseline" kabi o'ziga xos brend nomlari ba'zan ushbu turdagi mahsulotlar yoki tovarlarning turli markalari uchun umumiy nom sifatida ishlatiladi. Bu so'zlarning ba'zilari faqat ingliz tilidan tuzilgan: Kleenex – clean (toza), Jell- gel (gel).

Reklama matnining morfologik xususiyatlaridan biri chatishma (blending) bo'lib, "ikki leksemaning qo'shilishidan bir ma'noni ifodalash"ni anglatadi. Masalan, Starbucks Coffee, Australia Post, family - friend va family Jazzercise - Jazz va exercise, Eurasia - Europe va Asia, avgas - aviation va gasoline, daisy - days va eye, podcasting - ipod va broadcasting, Sociophobia, actpression, Robelloween, Ecovolution, Weastfouria, and Broadmosphere, Fooshion, Robelloween, Weastfouria. Fooshion - food va fashion so'zlaridan yasalgan, ya'ni ovqat va moda. Food so'zining oxirgi undosh harfi tushib qolgan va fashion so'zining birinchi undosh va unli harflari F va A tushib qolgan. Ushbu chatishma ovqat va moda so'zlarining birikishidan oziq-ovqat ko'rgazmasini hosil qilgan. Weastfouria iborasi West va East (g'arb va Janub), Four (to'rt) va Euphoria (eyforiya) Sharqni ifodalovchi yapon madaniyati va G'arb tomonidan ifodalangan ingliz madaniyatini o'z ichiga olgan hamkorlikdagi tadbir. "To'rtta" so'zi tadbirni rejalashtirayotgan 4-chi raqamli muassasa bo'lishi mumkin. Eyforiya so'zi esa "rohatlanasiz" ma'nosida ishlatilgan. Crenation so'zi "creativity" va "nationalism" so'zlari birikishidan paydo bo'lgan. Bu jarayonda birinchi va ikkinchi so'zlarning oxirgi qismlari olib qo'yilgan (ativity va alism). Bu yerda ikkala so'zning birinchi qismi saqlab qoling: creativity + nationalism. Ba'zi reklamalarda haqiqiy ehtiyojni ifodalasa, ba'zilari o'ynoqi xarakterga ega bo'ladi.

Reklama matnining fonologik xususiyatlari haqida so'z yuritar ekanmiz, reklama matnida ko'pincha she'riy uslubdan foydalanilayotganini kuzatish mumkin. Mnemonik vositalarning (qofiya, ritm, alliteratsiya, assonans) afzalligi shundan iboratki, ovoz reklama sanoatida qo'llaniladigan eng samarali vosita bo'lib, aktyor yoki aktrissalar reklamani ijro etishda va matni o'qishda ovozlarini

bo'rttirib o'qiydilar. Shu usul orqali kerakli vaqtda tinglovchining axborotni eslab qolishini kafolatlashga va undan ta'sirlanishiga erishadilar. Masalan, mushaklarni baquvvat qiladigan mahsulot reklamasida kuchli erkak timsolining ovozi aniq, qo'pol va momaqaldiraqday jarangdor yangrasa, kosmetika vositalari reklamalarida ayol kishining ovozi mayin, yengil nafasda, yumshoq artikulyatsiya bilan ijro etiladi” .

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IMPROVING LISTENING COMPREHENSION SKILLS THROUGH ESP LEARNERS

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Abstract. *Listening comprehension is a fundamental skill within the framework of language learning, especially in English for Specific Purposes (ESP). As the global workforce demands more specialized English proficiency, enhancing listening skills becomes crucial for learners in various professional fields. This study investigates effective strategies to improve listening comprehension among ESP learners, focusing on practical interventions that educators can implement.*

Keywords. *Listening skills, active listening, educational strategies, comprehension, student engagement.*

Participants

The research involved 120 ESP learners from three universities offering programs in business, engineering, and healthcare. Participants were randomly assigned to two groups: a control group (60 participants) receiving traditional instruction and an experimental group (60 participants) engaged in targeted listening interventions.

Materials

The study employed a variety of authentic audio materials relevant to the participants' fields, including:

Podcasts: Industry-specific discussions.

Lectures: Recorded university lectures in relevant subjects.

Interviews: Conversations with professionals from each field.

Pre- and post-test assessments were designed to measure listening comprehension proficiency, using a standardized test specifically focused on ESP contexts.

Procedure

Pre-Assessment: Both groups completed a listening comprehension test to determine initial skill levels.

Intervention for the Experimental Group:

Focused Listening Activities: Participants engaged with audio materials while taking notes, identifying key points and structure.

Vocabulary in Context: Emphasis was placed on understanding professional jargon through contextual examples.

Peer Discussions: Group discussions followed each audio session to foster deeper understanding and collaborative learning.

Post-Assessment: After a four-week intervention, participants retook the listening comprehension test to evaluate any improvements.

Results

Data Analysis

Scores from the pre- and post-tests were analyzed using statistical methods, specifically paired t-tests, to identify any significant differences in performance between the two groups.

Findings

Control Group: Minimal improvement was observed, with an average score increase of 6% post-intervention.

Experimental Group: Significant improvement was noted, with an average score increase of 22%. This group demonstrated a higher retention of specialized vocabulary and better overall comprehension.

Statistical Significance

The t-test results revealed that the experimental group showed a statistically significant improvement compared to the control group ($p < 0.01$), underscoring the effectiveness of the targeted listening strategies.

Discussion

The results of this study emphasize the importance of tailored listening exercises in enhancing comprehension skills among ESP learners. The structured approach not only improved understanding of audio content but also fostered active engagement through collaborative discussions.

Implications for Educators

Utilization of Authentic Materials: Incorporating real-world audio resources is essential for contextual learning and relevance.

Interactive Learning Strategies: Engaging learners in discussions and collaborative activities enhances retention and comprehension.

Continuous Monitoring: Regular assessments help educators gauge progress and adjust teaching methods accordingly.

Limitations

While the study provides valuable insights, it is limited by its sample size and the duration of the intervention. Future research should involve larger and more diverse populations and explore long-term effects of these listening interventions.

Conclusion

Enhancing listening comprehension skills in ESP learners is achievable through focused strategies that incorporate authentic materials and interactive learning. By implementing these methods, educators can better prepare students for

the specific demands of their professional fields. Improved listening skills not only contribute to effective communication but also empower learners to succeed in their careers. Before diving into techniques, it's essential to recognize why listening is crucial. Active listening fosters better relationships, whether personal or professional. It demonstrates respect and empathy, allowing others to feel valued. When we listen well, we can respond thoughtfully and avoid misunderstandings, ultimately leading to more productive conversations.

Enhanced Relationships: Strong listening skills can build trust and rapport.
Increased Retention: Active listeners are more likely to remember information.
Conflict Resolution: Good listening helps to de-escalate tensions and facilitate discussions. Participating in groups that focus on discussion can provide a platform for practice. In such settings, members can share experiences, and each person gets a chance to practice active listening without the pressure of being judged. Active listening is a critical component of effective communication. Several studies emphasize key techniques that can be employed:

Reflective listening involves paraphrasing what the speaker has said to confirm understanding. Research by Rogers and Farson (1957) highlights how this technique not only validates the speaker but also encourages deeper dialogue. Nonverbal communication plays a significant role in listening. According to Mehrabian (1971), body language, facial expressions, and eye contact are crucial in conveying attentiveness. Listeners who employ positive nonverbal cues are more likely to foster trust and openness in conversations.

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THE HISTORY OF ENGLISH LINGUISTICS

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Abstract. *This article provides an overview of the development of English linguistics, tracing its roots from early language studies to modern theoretical approaches. It explores key milestones in the evolution of the field, beginning with the works of grammarians and philologists in the 16th century and continuing through the rise of structuralism, generative grammar, and sociolinguistics in the 20th and 21st centuries. Significant figures such as Samuel Johnson, Ferdinand de Saussure, and Noam Chomsky are discussed, along with the impact of historical events like colonization, globalization, and technological advancements on the study of English linguistics.*

Keywords. *English linguistics, history of linguistics, philology, structuralism, generative grammar, sociolinguistics, Ferdinand de Saussure, Noam Chomsky, Samuel Johnson*

Introduction

The study of linguistics has a long and rich history, particularly with regard to the English language. From early grammarians attempting to standardize English usage to contemporary theorists exploring the nuances of syntax, semantics, and pragmatics, English linguistics has evolved alongside the language it seeks to understand. This article charts the major developments in the history of English linguistics, emphasizing key figures, movements, and methodologies.

Early Philology and Grammar (16th–18th Century)

The formal study of the English language began in earnest during the Renaissance when scholars such as William Lily and John Colet sought to codify English grammar based on classical Latin models. Their work laid the foundation for later grammarians, including Robert Lowth, whose *A Short Introduction to English Grammar* (1762) became a reference point for English language teaching for centuries. However, it was Samuel Johnson's *A Dictionary of the English Language* (1755) that marked a turning point in English linguistics. Johnson's dictionary not only standardized English spelling but also offered insight into word meanings and etymologies, making it a monumental contribution to the field.

19th-Century Philology and Historical Linguistics

During the 19th century, linguistics underwent significant changes with the rise of historical and comparative linguistics. Scholars like Jacob Grimm and Rasmus Rask compared different language families to establish relationships between them, setting the stage for the study of language change over time. In England, Henry Sweet and William Dwight Whitney became prominent figures, focusing on phonetics and the history of English. Sweet's phonetic transcriptions and systematic study of sounds contributed to the later development of the International Phonetic Alphabet (IPA).

The Structuralist Revolution (Early 20th Century)

The early 20th century saw a major shift in linguistic theory with the rise of structuralism, pioneered by Swiss linguist Ferdinand de Saussure. Saussure's *Course in General Linguistics* (1916) introduced the concept of language as a structured system of signs, fundamentally changing the way linguists approached language study. This theoretical framework, which emphasized the relationships between linguistic elements rather than isolated elements themselves, greatly influenced English linguistics.

In the English-speaking world, structuralist approaches were further developed by scholars such as Leonard Bloomfield. Bloomfield's *Language* (1933) formalized a descriptive method for studying language that prioritized empirical data and scientific rigor. The influence of structuralism led to advancements in areas such as phonology and morphology, shaping linguistic analysis in the mid-20th century.

Generative Grammar and Noam Chomsky (Mid-20th Century)

Noam Chomsky revolutionized the field of linguistics in the 1950s with his theory of generative grammar. His seminal work, *Syntactic Structures* (1957), introduced the concept of deep and surface structures in language, proposing that humans have an innate ability to generate sentences through a universal grammar.

Chomsky's ideas challenged behaviorist theories of language acquisition and shifted the focus of linguistics to cognitive processes. This marked the beginning of the cognitive revolution in linguistics, with Chomsky's theories dominating the field for decades and continuing to be highly influential.

Sociolinguistics and Language Variation (Late 20th Century)

As the 20th century progressed, new subfields within linguistics emerged, including sociolinguistics, which examines the social factors that influence language use. Pioneers such as William Labov studied language variation and change in different social contexts, demonstrating that linguistic features can vary based on factors like class, gender, ethnicity, and region. Sociolinguistics expanded the scope of English linguistics to include the study of dialects, register, and language in society, reflecting the growing diversity of English speakers worldwide.

Contemporary Trends in English Linguistics

In the 21st century, English linguistics has continued to evolve, incorporating insights from technology, corpus linguistics, and computational models. Digital tools have enabled linguists to analyze vast amounts of language data, offering new perspectives on language structure and usage. Additionally, the globalization of English has sparked interest in World Englishes, as linguists study how English is used and adapted in different cultural and geographical contexts.

Conclusion. The history of English linguistics is a testament to the dynamic nature of both the language and the field of linguistics. From the early grammarians to modern cognitive and sociolinguistic approaches, the study of English has undergone profound transformations. As English continues to spread and evolve, so too will the discipline of linguistics, ensuring that the study of language remains a vibrant and ever-changing field.

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INTEGRATING NUTRITION EDUCATION INTO ENGLISH LESSONS: TEACHING STUDENTS ABOUT A HEALTHY DIET

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Abstract: *Incorporating health education into English language instruction provides an opportunity to address the crucial topic of nutrition while enhancing language skills. This article explores effective strategies for teaching students about healthy diets during English lessons. By integrating vocabulary, reading comprehension, and writing activities centered around nutrition, educators can promote both language proficiency and health awareness.*

Keywords: *healthy education, nutrition, eating habits, obesity, diet-related diseases.*

Introduction

In today's fast-paced world, the importance of a healthy diet cannot be overstated. With rising rates of obesity and diet-related diseases, it is essential to educate young people about nutrition. English language classrooms present a unique opportunity to teach students about healthy eating habits while developing their language skills. This article outlines practical strategies for integrating nutrition education into English lessons, aiming to foster both linguistic competence and healthy lifestyle choices.

Importance of Teaching Healthy Diets

Teaching students about healthy diets raises awareness of the impact of food choices on overall health. Understanding the benefits of nutritious foods can empower students to make informed decisions about their diets, which is particularly vital during their formative years.

Discussing nutrition in English lessons not only enhances students' vocabulary related to food and health but also improves their reading, writing, and speaking skills. This integration helps students contextualize language learning in real-world scenarios.

Strategies for Teaching Healthy Diets in English Lessons

1. Vocabulary Building

a. **Food Groups and Nutrients** Begin by introducing key vocabulary related to healthy eating, such as food groups (fruits, vegetables, grains, proteins, dairy) and nutrients (vitamins, minerals, fiber). Use visual aids like charts or flashcards to reinforce learning.

b. **Descriptive Language** Encourage students to use descriptive language when discussing food. Activities can include describing the taste, texture, and appearance of different foods, which enhances their ability to articulate their thoughts.

2. Reading Comprehension

a. **Health Articles and Recipes** Select age-appropriate articles about healthy eating or recipes that focus on nutritious meals. After reading, engage students in discussions or comprehension questions that assess their understanding of the material.

b. **Infographics** Utilize infographics that depict healthy eating guidelines or statistics about nutrition. Infographics can help students visually interpret data, enhancing their comprehension and critical thinking skills.

3. Writing Activities

a. **Food Journals** Encourage students to keep food journals where they record their daily meals and reflect on their nutritional choices. This activity promotes self-awareness and provides opportunities for writing practice.

b. **Persuasive Writing** Assign a persuasive writing task where students advocate for healthy eating. They could write letters to their peers or parents, sharing the benefits of adopting a nutritious diet and suggesting healthy meal options.

4. Speaking Activities

a. **Group Discussions** Organize group discussions or debates on topics related to healthy eating, such as the benefits of a plant-based diet versus a meat-based diet. This fosters speaking skills while allowing students to express their opinions.

b. **Presentations** Have students prepare presentations on specific aspects of nutrition, such as the importance of hydration or the benefits of whole grains. Presentations encourage research skills and enhance public speaking abilities.

5. Interactive Activities

a. **Cooking Demonstrations** If facilities allow, conduct cooking demonstrations where students can prepare simple, healthy recipes. This hands-on experience reinforces the lessons learned about nutrition and encourages practical application.

b. **Grocery Store Visits** Organize field trips to local grocery stores where students can learn to read food labels and identify healthy choices. Provide them with a checklist of items to find, facilitating active learning.

Conclusion

Integrating healthy diet education into English lessons offers a dual benefit: enhancing language skills while promoting awareness of nutrition. By employing various teaching strategies—ranging from vocabulary building and reading comprehension to interactive activities—educators can create a comprehensive learning experience. As students become more informed about healthy eating, they not only improve their language proficiency but also empower themselves to make better dietary choices. This approach ultimately contributes to their overall well-being and prepares them for a healthier future.

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**МИЛЛИЙ ГВАРДИЯ ХАМКОРЛИГИДА КАМОНДАН ОТИШ СПОРТ
ТУРИНИНГ РИВОЖЛАНИШИ**

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***Аннотация:** Мақолада, Миллий Гвардия қўмондони Ўзбекистон камондан
отиш федерациясига раис этиб сайланганидан сўнг соҳада амалга
оширилаётган ижобий ислоҳотлар масаласи қисқача ёритилган.*

***Калит сўзлар:** Камон, ўқ отиш, миллий гвардия, иқтидор, ватанпарварлик,
ёшларни қўллаб қувватлаш.*

Бугунги кунда ёшлар ўртасида соғлом турмуш тарзини тарғиб қилиш, уларнинг спорт билан шуғулланиши учун зарур инфратузилма ва қулай шарт-шароитлар яратиш, камондан отиш спорт турини юртимизда янада ривожлантириш ҳамда мамлакат спортчиларининг халқаро спорт майдонларида муносиб иштирокини таъминлаш долзарб масалалардан биридир.

Камондан ўқ отиш спорт тури – миллий, қадимий спорт тури бўлиб, мазкур спорт турига қаратилаётган эътибор миллий кадрларимизнинг тикланишига ва бу орқали ёшларимиз қалбида ватанпарварлик ҳиссини янада кучайтиришга хизмат қилади. Бу эса давлатимизнинг мазкур йўналишдаги ислоҳотларининг бош мезони эканлигини тушуниш зарур.

2021 йил сентябр ойида бўлиб ўтган Ўзбекистон камондан отиш федерациясининг навбатдан ташқари Конференциясида Ўзбекистон Республикаси Бош вазири ўринбосари, Туризм ва спорт вазири, Миллий гвардия қўмондони, МОҚ раҳбарияти, мутасадди ташкилотлар вакиллари, овоз бериш ҳуқуқига эга бўлган делегатлар ҳамда мураббийлар ва бошқа мутахассислар қатнашиб, Миллий Гвардия қўмондони Ўзбекистон камондан

отиш федерациясига раис этиб сайланди. Ушбу воқеанинг асосий турткиси бўлган Президент Ш.Мирзиёевнинг 2021 йил 17-июндаги № 5149-сонли Президент қарори ҳисобланади. Унда камондан отиш спорт турини ривожига ҳамда бу борада аниқ мақсадга йўналтирилган чора-тадбирлар амалга оширилиши лозимлиги таъкидланган. Жумладан, 2021 йил 17-июндаги № 5149-сонли Президент қарорига кўра 2022-2024 йилларда Қорақалпоғистон Республикаси, вилоятлар ва Тошкент шаҳрида камондан отиш спорт тури бўйича жаҳон стандартларига жавоб берадиган спорт базаларини ташкил этиш бўйича Низом ишлаб чиқилди.

Унга кўра, жамиятимизда соғлом турмуш тарзини шакллантириш, аҳолининг жисмоний тарбия ва спорт билан мунтазам шуғулланиши учун замон талабларига мос шарт-шароитлар яратиш, иқтидорли спортчиларни саралаб олиш ишларини тизимли ташкиллаштириш, буюк аждодларимиз Амир Темур, Бобур Мирзо, Жалололдин Мангубердилардан мерос бўлиб қолган камондан отиш анъаналари ва қадриятларини келажак авлодларга етказиш, миллий спорт турларини кўпайтириш, камондан отиш спорт тури бўйича миллий терма жамоамизнинг Олимпия ва Паралимпия, Осиё ва Параосиё ўйинларида, жаҳон чемпионатларида ва бошқа йирик мусобақаларда муносиб иштирок этишини таъминлаш масалалари мақсад этиб белгиланди.

Бу мақсадга кўра, Миллий гвардиянинг камондан отиш спорт турини ривожлантиришда амалга оширадиган асосий йўналишлари қуйидагилардан иборатдир:

-камондан отиш спорт тури бўйича қизиқувчан, иштиёқи баланд бўлган иқтидорли ёшларни аниқлаш, танлаш ва саралаш (селекция) ҳамда уларни профессионал спортчилар сифатида тайёрлашнинг янги тизимини йўлга қўйиш;

-Республика миқёсида камондан отиш спорт тури бўйича профессионал спортчилар, малакали тренерлар, ҳакамлар ва мутахассисларни тайёрлаш ҳамда уларни касбий ривожлантириш, ўқув-машғулотлар жараёнига илғор илмий-инновацион технологияларни кенг жорий қилиш ва ўқув-услубий қўлланмалар ишлаб чиқиш, илмий тадқиқотларни олиб бориш;

-ушбу спорт тури билан шуғулланиш учун зарур моддий-техник база ва инфратузилмани шакллантириш ҳамда замонавий спорт анжомлари, жиҳозлари, кийимлари ва экипировкаси билан таъминлаш, Ўзбекистон камондан отиш федерацияси фаолиятини қўллаб-қувватлаш;

-жисмоний имконияти чекланган ва ногиронлиги бўлган шахслар томонидан паракамондан отиш спорт тури билан шуғулланиш учун зарур шароитлар яратиш, уларнинг Паралимпия ва Параосиё ўйинлари ҳамда

халқаро мусобақалар, турнирлар ва жаҳон чемпионатларида доимий ва муносиб иштирокини таъминлаш;

-республика ва халқаро мусобақалар, турнирларни ҳамда жаҳон чемпионатларини доимий равишда ташкил этиш ва ўтказиш, мамлакатимизнинг рейтинг кўрсаткичларини яхшилаш;

-жаҳон стандартларига жавоб берадиган миллий ва профессионал чет эл бренд камонлари, ўқлар, тўсиқлар ҳамда спорт анжомлари, жиҳозлари, кийимлари ва экипировкасини ишлаб чиқаришни ташкил этиш;

-камондан отишни миллий спорт тури сифатида кенг ёритиш ҳамда тарғиб қилиш ишларини ташкиллаштириш, оммалаштириш, аҳолининг ушбу спорт турига қизиқишини ошириш.

2021 йил 1-октябрда Фарғона вилоятида камондан отиш спорт турини янада ривожлантирилишига Ўзбекистон Республикаси Миллий гвардияси ташкилотчилигида ўтказилган мусобақа ушбу ишларнинг дебчаси бўлди. Фарғона шаҳрида Фарғона вилояти Қўриқлаш бошқармаси, Вилоят ҳокимлиги ва Фарғона ҳарбий прокуратураси билан ҳамкорликда спортнинг “Камондан отиш тури бўйича” ўсмир ёшлар ўртасида ўтказилган Қўриқлаш бошқармаси бошлиғи кубоги мусобақасида 100 га яқин спортчи йигит ва кизлар, 50 метр йўналишда, олимпик раунд йўналишда, микс йўналишда ҳамда жамоа биринчилиги йўналишларида ўз имкониятларини синаб кўришди. Мусобақа сўнгида ташкилотчилар томонидан ғолиб ва фаол жамоалар муносиб рағбатлантирилиб, жаҳон ареналарида фахрли ўринларни эгаллашларида улкан зафарлар тиланди. Бу каби спорт тадбирлари миллий кадриятларимизни тикланишига ва ёшлар қалбида ватанпарварлик хиссини янада кучайтиришга хизмат қилади.

Хулоса сифатида шуни айтиш мумкинки, шу кунгача Миллий гвардия ҳомийлиги остида Фарғона вилояти камондан отиш спорти қатнашчилари республикамизнинг турли вилоятларида ғолибликни қўлга киритиб қайтдилар. Уларнинг бундан кейинги ютуқлари халқаро жаҳон ареналарида бўлишини тилаб қоламиз.

Фойдаланилган адабиётлар рўйхати:

1. Ш.М.Мирзиёевнинг 2021 йил 17-июньдаги № 5149-сонли Президент қарори.
2. «Жисмоний тарбия ва спорт тўғрисида»ги Ўзбекистон республикаси қонунига ўзгартиши ва қўшимчалар киритиши ҳақида Ўзбекистон республикасининг қонуни 2015 йил 24 июлда қабул қилинган.
3. “Фарғонада спортнинг “камондан отиш” тури бўйича қўриқлаш бошқармаси бошлиғи кубоги мусобақаси ўтказилди” номли интернет мақола. <https://ngoxrana.uz/?news>

ИСТОРИЯ БАЗАРОВ ФЕРГАНСКОЙ ДОЛИНЫ — ИСТОРИЯ И СОВРЕМЕННОСТЬ.

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***Аннотация:** В статье рассматривается развитие рыночной деятельности в Узбекистане с древних времен до современности, рассматриваются этапы ее истории, изучается развитие торговой деятельности в регионах Центральной Азии с древнейших времен, раскрывается роль современных рынков в формировании их функций. В качестве примера можно привести базары Ферганы, Маргилана и Коканда.
Ключевые слова: экономические реформы, рыночная инфраструктура, методы торговли, стоимость, рынок, торговая ярмарка, оценка.*

Географическое положение

Ферганская долина расположена на территории современных Узбекистана, Кыргызстана и Таджикистана. Она известна своими плодородными землями и удобным климатом.

Ферганская долина — это замкнутая равнина, окруженная горами Тянь-Шаня и Памир. Она имеет стратегически важное положение на пересечении культур и торговых путей, что способствовало ее развитию как важного региона.

Древние времена

Поселения: Археологические находки свидетельствуют о том, что люди обитали в этом регионе с эпохи неолита. Здесь находились древние города и крепости, такие как Коканд и Маргилан.

Шелковый путь: Ферганская долина была важной частью Шелкового пути, что способствовало обмену товарами, культурами и идеями между Востоком и Западом.

Средние века

Исламская культура: С принятием ислама в VII веке регион стал центром изучения науки и искусства. Здесь процветали такие города, как Самарканд и Бухара, которые находились в непосредственной близости.

Ремесла: Маргилан, например, славился производством шелка и текстиля, а Фергана — керамикой и ювелирными изделиями.

Период Российской империи

Присоединение: В 1876 году Ферганская долина была аннексирована Российской империей. Это привело к изменениям в социальной структуре и экономике региона.

Инфраструктура: Были построены новые дороги, железные дороги и школы, что способствовало развитию торговли и образования.

Советский период

Аграрная реформа: После революции 1917 года в Советском Союзе начались аграрные реформы, которые изменили структуру землевладения. Ферганская долина стала важным регионом для хлопководства.

Индустриализация: В 1930-х годах началась индустриализация, появляются новые заводы и предприятия, развиваются сельское хозяйство и переработка продукции.

Культурное наследие

Ферганская долина славится своим культурным наследием. Здесь находятся древние памятники архитектуры, такие как мечети и медресе. Регион известен также своими ремеслами, включая изготовление текстиля и керамики.

Архитектура: Ферганская долина известна своими историческими памятниками, включая мечети, медресе и мавзолеи. Примеры включают мечеть Джамии в Коканде и медресе Аминова в Маргилане.

Ремесла: Регион славится традиционными ремеслами, такими как ткачество, керамика и резьба по дереву. Мастера передают свои знания из поколения в поколение.

Базары Ферганской долины: сердце торговли и культуры

Ферганская долина, расположенная в Центральной Азии, славится не только своими живописными пейзажами, но и разнообразием базаров, которые играют важную роль в жизни местного населения. Эти рынки являются центрами торговли, культуры и общения, сохраняя древние традиции и обычаи.

Историческое значение

Базары Ферганской долины имеют глубокие исторические корни и восходят к временам, когда регион был важной частью Шелкового пути. Эти торговые пути связывали Восток и Запад, и базары становились местами обмена не только товарами, но и идеями, культурами и традициями.

Известные базары

1. Базар в Фергане

Базар в Фергане — один из самых крупных и популярных рынков региона. Здесь можно найти широкий ассортимент товаров: от свежих фруктов и овощей до текстиля и керамики. Местные производители предлагают свою продукцию, что делает рынок особенно привлекательным для туристов и местных жителей.

2. Базар в Маргилане

Маргилан известен своим текстильным производством, и это отражается на местном базаре. Здесь можно приобрести уникальные изделия, такие как узбекские шелковые ткани, которые славятся своим качеством и яркими цветами. Базар также предлагает разнообразные специи, фрукты и сувениры.

3. Базар в Коканде

Кокандский базар — это место, где можно ощутить атмосферу старинного города. Он известен своими традиционными ремеслами и изделиями ручной работы. Здесь также можно найти множество кулинарных деликатесов, включая национальные блюда и сладости.

Культура и традиции

Базары Ферганской долины — это не только торговые площадки, но и культурные центры. Здесь проходят праздники, ярмарки и культурные мероприятия. Местные жители собираются, чтобы обсудить новости, обменяться мнениями и просто провести время в компании друзей и семьи.

Современные тенденции

С развитием технологий и глобализацией базары Ферганской долины также меняются. Появляются новые формы торговли, такие как интернет-магазины, но традиционные рынки все еще сохраняют свою популярность. Люди ценят возможность видеть, пробовать и обсуждать товары вживую.

Сегодня Ферганская долина продолжает оставаться важным регионом, сохраняя свои традиции и культуру, одновременно адаптируясь к современным изменениям. Экономика региона разнообразна, включает сельское хозяйство, промышленность и туризм.

Экономика: Сегодня Ферганская долина продолжает быть важным аграрным регионом, производя хлопок, фрукты и овощи. Также развиваются туристические направления.

Социальные изменения: Регион сталкивается с вызовами, такими как миграция, экономические трудности и необходимость сохранения культурного наследия.

Современность в Базарах Ферганы

Базары Ферганской долины сегодня представляют собой уникальное сочетание традиций и современных тенденций. Они продолжают сохранять свою значимость как культурные и торговые центры, адаптируясь к изменениям в экономике и обществе.

1. Разнообразие товаров

Современные базары Ферганы предлагают широкий ассортимент товаров:

Сельскохозяйственная продукция: Свежие фрукты, овощи, зелень, а также молочные продукты и мясные изделия. Местные фермеры предлагают органическую продукцию, что становится все более популярным.

Традиционные ремесла: Узбекские текстили, керамика, изделия из кожи и дерева. Мастера продолжают использовать традиционные методы, что привлекает как местных жителей, так и туристов.

Современные товары: На базарах также можно найти электронику, одежду и аксессуары, что отражает глобализацию и новые потребительские тенденции.

2. Влияние технологий

С развитием технологий базары начали интегрироваться с цифровыми платформами:

Социальные сети: Местные продавцы используют Instagram и Facebook для продвижения своих товаров.

Онлайн-продажи: Некоторые базары начинают предлагать возможность заказа товаров через интернет, что позволяет расширить клиентскую базу.

3. Культурные события

Базары остаются важными культурными центрами, где проходят различные мероприятия:

Праздники и ярмарки: Время сбора урожая, национальные праздники и другие события привлекают множество людей.

Мастерклассы: На некоторых базарах проводятся мастер-классы по традиционным ремеслам, что помогает сохранять культурное наследие.

4. Экономические изменения

Стимулирование местной экономики: Базары способствуют развитию местного бизнеса и создают рабочие места.

Туризм: Ферганская долина привлекает туристов, и базары становятся важной частью их маршрутов, что помогает местным жителям зарабатывать на жизнь.

5. Социальные аспекты

Сообщество: Базары продолжают быть местом встречи для жителей, способствуя укреплению социальных связей.

Обмен опытом: На базарах люди обсуждают новости, делятся опытом и традициями, что способствует передаче знаний из поколения в поколение.

Заключение

Ферганская долина — это уникальный регион с богатой историей и культурным наследием. Он прошел через множество изменений, сохраняя при этом свои традиции и идентичность.

Базары Ферганской долины — это не просто места для покупок, но и важные культурные и социальные центры. Они сохраняют богатое наследие, отражая историю и традиции региона. Посещение этих базаров — это уникальная возможность погрузиться в атмосферу узбекской культуры и насладиться разнообразием местной продукции.

Современные базары Ферганы остаются живым отражением культуры и традиций региона, одновременно адаптируясь к вызовам времени. Они продолжают играть важную роль в жизни местных жителей, сохраняя дух общности и традиционного обмена.

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КИБЕРМАКОНДА ДИНИЙ ЭКСТРЕМИСТИК ВА ТЕРРОРИСТИК

ТАҲДИДЛАРНИ ОЛДИНИ ОЛИШНИНГ АҲАМИЯТИ

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Аннотация. *Мазкур мақолада бугунги кунда информацион глобаллашув шароитида кибермакондаги диний экстремистик ва террористик таҳдидларнинг ижтимоий хавфи ҳамда уни олдини олишнинг фалсафий методологик муаммолари баён этилган. Шунингдек мақолада ахборот хуружлари ва маънавий таҳдидларни олдини олиш учун аввало талаба ёшларимизда ахборот маданиятини шакллантириш зарурияти асослаб берилган.*

Калит сўзлар. *Информацион глобаллашув, ахборотлашган жамият маънавий таҳдидлар, ахборот хуружи, диний экстремистик ғоялар, диний терроризм, ахборот маданияти.*

Кириш

Информацион глобаллашув кишилиқ жамиятига хос табиий тарихий тараққиёт жараёнининг навбатдаги босқичи бўлиб, илмий адабиётларда кўпинча ахборотлашган жамият деб юритилмоқда. Информацион цивилизациянинг ҳосиласи бўлмиш кибермаконда интернет тармоқлари ижтимоий турмуш тарзининг барча соҳаларига кириб бормоқда ва фойдаланувчиларга катта имконият яратмоқда. Жумладан, таълим жараёнида инновацион технологиялардан фойдаланишда ва масофали таълим тизимида, илмий тадқиқот босқичларида, видеоконференцияларни ташкил этишда, айниқса, жаҳоннинг исталган нуфузли кутубхоналаридаги адабиётлар билан танишишда беқиёс аҳамият касб этмоқда.

Ахборот асри кишилиқ жамияти тараққиётига хос бўлган табиий-тарихий жараён бўлиб, унинг ижобий жиҳатлари билан бир қаторда салбий хусусиятлари ҳам мавжуддир. Бу салбий хусусиятлар кўпроқ ахборот хуружлари ва маънавий таҳдидларларда намоён бўлмоқда. Ёшларимизнинг маънавиятига салбий таъсир этаётган маънавий таҳдидлар ва ахборот хуружлари асосан “Оммавий маданият” замиридаги ахлоқсизлик ҳамда диний экстремистик ва террористик ғоялар шаклда намоён бўлмоқда.

Бугунги кунда кибермакондан диний жараёнларда фойдаланиш, хусуса, диний мазмундаги маълумотларни, миссионерлик ва сохта тариқатчилик ғояларини, айниқса, диний мутаассибона террористик ғояларни тарқатишда интернетдан фойдаланиш кенг авж олмоқда.

Аввало ижтимоий нуқтаи-назардан кибермакон деганда компьютер тармоғи орқали бир-бири билан боғланган ва бир вақтнинг ўзида турли географик нуқтада кесишувчи ҳар қандай мавжуд компьютернинг график сифатидаги маълумотларига ўралашиб қолган кишилар жамоаси тушунилади.

Кибермаконда интернет тармоғидан фойдаланишда жуда катта имкониятлар мавжуд. Авваллари ноёб бўлган, ҳамма ҳам фойдаланиш имкониятига эга бўлмаган муқаддас матнлар ва уларга ёзилган турли шарҳларни эндиликда исталган киши интернет сайтлардан юклаб таълим олиш мумкин. Шу мақсадда диний маълумотларга кучли эҳтиёж сезган кишилар учун махсус веб сайтлар муқаддас матнлар, диний манбалар, турли туман секта ва янги диний ҳаракатларининг ғояларини тарғиб этувчи маълумотлар билан тўлдирилган. Энг таҳликалиси диний экстремистик ва террористик ғояларини тарғиб этувчи интернет сайтлари кундан кунга кўпаймоқда. Бу кибертерроризмнинг жиддий ижтимоий хавф сифатида намоён бўлишидир. Айниқса бугунги кунда “ўргамчак тўрида” диний экстремистик ғоялар тарғиботи ҳамда диний мутаассиблик ва терроризмга чақириқлар домига тушиб қолаётгана кишилар кўпаймоқда.

Террористлар бу ишга катта малака, тажрибага ега бўлган европалик мутахассисларни жалб етганлар. Улар ёшларни ўзларининг алдовлари домига тортиш учун видеолавҳалар ва чақириқларини юқори сифат ва профессионал маҳорат билан ишлаганлар. Шунинг учун ҳам кўплаб фуқаролар, асосан ёшлар уларнинг манфур тузоғига илинди. Ёшларнинг бундай бузғунчи ғояларга алданмасликлари ҳамда залолат ботқоғига ботмасликлари учун биз

мутахассислар зарурий методологик тавсиларимизни ўз вақтида ишлаб чиқишимиз керак. Ёшларимизга интернетда ин қуриб, ўзларининг вайронкор ғояларини хатарли вирус каби бутун дунёга тарқатаётган жиноятчи террорчи ғаламисларнинг асл башарасини очиб беришимиз керак.

Интернет тармоғида диний экстремистик, террорчилик ва бузғунчиликларни тарғиб қилувчи веб-сайтлар, ижтимоий тармоқдаги гуруҳлар сони кун сайин кўпаймоқда. Бу ҳолат дунёқараши шаклланмаган ва ғўр ёшларимизнинг соғлом эътиқодини онги ва дунёқарашини заҳарламоқда.

Ёшларнинг қизиқишига қараб, уларни турли видеолавҳалар ва фотосуратларни томоша қилишга жалб етиш орқали ёки ташқи кўринишидан гуёки уйин, техника, спортга доир бўлсада, лекин ички саҳифаларда фақат бузғунчиликни тарғиб этувчи веб журналларни тақдим этмоқда.

Президентимиз Ш.Мирзиёев таъкидлаганидек “Дииний экстремизм, терроризм, гиёҳвандлик, одам савдоси, ноқонуний миграция,

“оммавий мадаинят” каби таҳдидлар қанча-қанча оилалар, мамлакатлар бошига оғир кулфатлар олиб келмоқда, ғаразли кучлар ҳали онгу тафаккури тўла шаклланиб улгурмаган болаларни ўз ота-онаси, Ватанига қарши кўйиб, уларни ҳаётига зомин бўлмоқда”. Глобаллашув жадал суръатлар билан содир бўлаётган ҳозирги даврда талаба ёшларимизни ахборот маълумотларини олишларини тақиқлаш билан муаммони ижобий ҳал этиб бўлмайди. Биринчи Президентимиз таъкидлаганидек «Жаҳон ахборот майдони тоборо кенгайиб бораётган шундай бир шароитда болаларимизнинг онгини фақат ўраб-чирмаб, уни ўқима, буни кўрма, деб бир томонлама тарбия бериш, уларнинг атрофини темир девор билан ўраб олиш, ҳеч шубҳасиз, замоннинг талабига ҳам, бизнинг эзгу мақсадмуддаоларимизга ҳам тўғри келмайди. Нега деганда, биз юртимизда очиқ ва эркин демократик жамият қуриш вазифасинг ўз олдимизга қатъий мақсад қилиб қўйганимиз ва бу йўлдан ҳеч қачон қайтмаймиз».

Фуқароларнинг диний қизиқишларини ҳисобга олган ҳолда уларни эҳтиёжини қондириш мақсадида айна дамда интернет тармоғида Ўзбекистон мусулмонлари идораси тасарруфидаги бир неча ўнлаб веб-сайтлар фаолият юритмоқда. Мазкур сайтларда аждоодлармиз эътиқод қилиб келган суннийлик йўналишининг ҳанафий мазҳабига оид ихтиёрий саволларга диний уламоларимизнинг мукамал жавобларини топиш мумкин. Бугунги кунда ўн минглаб фуқароларимиз, айниқса ёшларимиз “UZ” доменидаги диний веб сайтларга мурожаат қилишмоқда. Мазкур сайтлар ишончли диний маълумотларни тақдим этади.

Шу билан бирга ёшларимизни кибермаконда диний экстремистик ва террористик таҳдидлардан сақлашимиз учун аввало уларда ахборот маданиятини шакллантиришимиз зарур.

Ахборот маданияти бу ҳар қандай олинган ёки берилган, эшитилган, кўрилган хабар, маълумот ёки ахборотни рационал тарзда, мантикий тафаккур асосида объектив, танқидий таҳлил этиш қобилияти тушинилади. Маълумотни таҳлил этиш ҳамда баҳолашда миллий маънавий қадриятлар асосида ва миллий менталитет нуқтаи назаридан ҳам ёндашиши ахборот маданиятининг таркибий қисмидир.

Ахборот маданиятининг таркибий элементлари қуйидагилардан иборатдир: рационал тафаккур; етук назарий билим, хусусан ижтимоий гуманитар фанлар соҳасида; ҳодиса, жараён ёки воқеликка танқидий ёндашиш ва мантикий таҳлил этиш қобилияти. Ёшларда тарихий хотира ва миллий ғурур, миллий маънавий қадриятларимиздан ифтихор туйғуси ахборот маданиятининг муҳим таркибий қисми ҳисобланади.

Ҳар қандай ахборотларни миллий менталитетимизга хос тарихий онг негизида танқидий таҳлил эта олиш қобилиятини ҳам ахборот маданиятининг зарурий жиҳатидир. Ёшларда ахборот маданиятини шакллантиришнинг объектив ва субъектив асос ҳамда омиллари, усуллари, воситалари мавжуддир.

Хулоса

Ахборот маданияти диний мазмундаги ахборот хуружлари ва кибер таҳдидлардан ҳимояланиш, ўз навбатида, уларга қарши курашиш учун энг зарурий воситадир. Чунки ахборот маданияти орқали ёшлар интернетда берилаётган маълумотларни “филтрлаш” олиш қобилияти шаклланади. Ахборот маданияти шакланган ёшларимиз интернетдаги диний экстремистик маълумотларни ажрата билиш қобилиятига эга бўлади.

Ахборот маданиятини шаклланишида муҳим воситалар ва усуллар ҳам мавжуд бўлиб, буларга оила, маҳалла таълим тарбия масканлари муҳим аҳамият касб этади.

Хулоса қилиб айтадиган бўлсак, узлуксиз таълим тизимининг барча босқичларида ёшларнинг ахборот маданиятини шакллантиришга жиддий эътибор қаратиш ҳар бир мураббий ва устоздан масъулият талаб этади. Зеро, ахборот маданияти ҳозирги мураккаб глобаллашув жараёнида мафкуравий иммунитетнинг муҳим таркибий қисми ҳамда кибермаконда диний экстремистик ва террористик таҳдидларни олдини олишнинг ҳамда зарурий ахборот хавфсизлигини таъминлашнинг асосий шартидир.

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EKOLOGIYADA GLOBAL ISISH MUAMMOSI VA UNING OQIBATLARINI OLDINI JLISHNING INOVATSION TEXNOLOGIYALARI.

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Jamiyat hayotiga ayni kunda tabiatga juda ko'pdan-ko'p salbiy ta'sir ko'rsatayotilayapti. Bu holat esa ularning barcha sayi - harakatlari natijasida yuzaga kelayotgan ekologik muammolardan biri xisoblanib, bu – global isishdir. Bu muammoning sababchisi insondir. Bu esa antropogen omilni yuzaga keltiradi. Iqlimning o'zgarishlari, global isish, ekologik tanglik, issiqxona effekti kabi barcha tushunchalar barchamizga tanish. Bundan tashqari, ommaviy axborot vositalarida esa bu haqida anchadan beri bong urib kelmoqda. Aslida, iqlimning o'zgarishlari esa bir ikki yilda yuzaga keladigan hodisa emasdir. Doimo sayyoramizdagi harorat doimiy ravishda o'zgarib kelgan. Ammo, zamonaviy iqlim avvalgilardan butunlay tubdan farq qiladi. Harorat ko'rsatkichi darajasi o'shib borishiga yerning tabiiy ob havosi va bundan tashqari inson faoliyati natijalari ham sabab bo'lishini kuzatishimiz mumkin. Global isishni esa bugungi kunda eng muhim muammolardan biri desak bo'ladi. Bu esa tobora tezlashib ko'plab jiddiy omillar ta'sirida yuzaga kelib, davom etmoqda. Uning asosiy sabablaridan biri esa atmosferadagi issiqxona gazlari miqdorining ortishidir. Bu gazlar esa suv bug'i, karbonat angidrid, metan, azonlar xisoblanadi. Karbonat angidrid, CO₂ insoniyatning ishlab chiqarish faoliyati natijasida chiqadigan asosiy gaz xisoblanib, atmosferada esa uning konsentratsiyasining qisqa muddat ichida ortishi sanoat davrining boshidan kuzatilgan. Global isishning rivojlanishida esa hal qiluvchi omil bu aynan ushbu gaz hisoblanadi. Ishlab 113 chiqarish tobora shiddat bilan rivojlanishi kuzatilayotgan bir davrda korxonalar, zavod va fabrikalardan atrof-muhitga chiqariladigan chiqindilarning ko'payishi, demografik o'sish, avtomobillarning ortib borishi havoning o'rtacha ko'rsatkichini ortib borishiga sabab bo'lmoqda. Bu esa albatta, eng salbiy deb xisoblangan oqibatlarni, yong'inlarni, ifloslanishni keltirib chiqaradi. Jumladan, Rossiya, Avstraliya, Amazoniya o'rmonlarida tabiiy yong'inlar yildan yilga og'irlashib bormoqda. Haroratning keskin ko'tarilishi sababli daryolar, ko'llar, dengizlardagi suvlar bug'lana boshlaydi. Atmosferadagi suv bug'ining miqdori esa ko'payishi kuzatilmoqda.

Okeanlar suv sathining oshishini ta'minlaydigan muzliklari yuqori tezlikda erishi ham kuzatilmoqda. Natijada esa, avtomatik ravishda bo'ronlar, suv toshqinlari, qirg'oqqa yaqin joylarda istiqomat qiluvchi ko'plab insonlarning halokati xam yuz bermoqda. So'nggi yillarda, havo haroratining ko'tarilishi oqibatida esa Pomir va Tyanshan muzliklarining tezlik bilan erishini xam kuzatishimiz mumkin. Bir necha o'n yil ichida esa ularning yarmidan ko'pi erib, xattoki tugashi ehtimoldan holi emas. Bu esa albatta ichimlik suvining tanqisligi va qurg'oqchilikka olib kelishi aniq.

Global isishga olib keladigan asosiy sabablardan quyidagilarni keltirishimiz mumkin:

- 1-Issiqxonalar effekti
- 2-qoldiq yoqilg'ilarni yoqish
- 3-o'rmonlarni yo'q qilish
- 4- organik moddalarning parchalanish jarayoni
- 5-tabiiy gaz, qazilmz boyliklari neft qazib olish.

Oqibatlar ro'yxati:

- 1- Iqlimning o'zgarishlari
- 2-xaroratning keskin o'zgarishi
- 3-kislotali okeanlardagi o'zgarishlar
- 4-qutblarning erishi
- dengiz sathining ko'tarilishi.

Odamlarning faoliyati tufayli atmosferaga chiqariladigan parnik gazlar, global isish muammolarini yanada kuchaytiradi. Bir nechta mikrogazlar yerdagi issiqlik muvozanatini o'zgarishida esa muhim rol o'ynaydi va sayyoramizda haroratning ortib borishini ifodalaydi. Bu esa —issiqlona effekti hodisi asini keltirib chiqaradi. Issiqlona effekti esa – yerdagi hayotning mavjudligiga imkon beradigan haroratni ushlab turuvchi hodisa xisoblanadi. Issiqlona gazlari doimiy ravishda o'zgarimasada, hech qanday muammolarning paydo bo'lishiga sabab bo'lmaydi, ammo ularning muvozanati esa buzilishi kuzatilishi mumkin, ya'ni ortiqcha bo'lsa, issiqlik qatlami hosil bo'ladi va bir qancha salbiy oqibatlar yuzaga keladi. Qazilma va qoldiq yoqilg'ilarni, yog'ochni yoqish jarayonlarida ham atmosferaga ko'p miqdorda karbonat angidrid gazi va boshqa zaharli gazlar chiqishi kuzatiladi. O'simliklar fotosintez jarayonini amalga oshirishida CO₂ gazi ishtirok etadi, ya'ni katta miqdorda o'zlashtirilishiga sabab bo'ladi. O'rmonlarni yo'q qilishda esa, qisqartirishda ushbu gazning atmosferadagi konsentratsiyasini oshirishi aniq.

Global isishlar natijasida ekotizimda kuzatiladigan xodisalardan ta'sirlaridan yana biri bu okeanlar PH qiymati kislotali holga keladi va suvdagi organizmlarning halok bo'lishiga olib kelishi kuzatiladi. Bundan tashqari, atmosferaga

chiqarilayotgan barcha turdagi gazlar, metan, is gazi, CO₂ bilan birga oltingugurt va azot oksidlari kislotali yomg'irlarni paydo qilmoqda. Bu esa atrof – muhitni ifloslantiradi. Bir so'z bilan aytganda, yuqoridagi barcha muammolarning kelib chiqishi va uning salbiy oqibatlari inson faoliyati natijasidir. Ming yillar mobaynida insoniyat sayyoradan noo`rin foydalanib, o'z maqsadi va manfaatlari yo'lida foydalanib kelmoqda. Katta-katta maydonlarning paydo bo'lishi, o'rmonlarning o'zlashtirilishi va ulardan foydalanish, moddalar almashinuvida muhim rol o'ynaydigan hayvon va o'simliklarning yo'q qilinishi kishilik jamiyatining mana shunday ayanchli harakatlari esa tabiatni g'azablantiradi. Global isish xodisasi esa bu noxush haqiqat. U barcha tirik organizmlarning va ularning yashash sharoitlari, joylariga salbiy ta'sir ko'rsatadi.

Turli xildagi kasallik turlarni avj olib ko'payib rivojlanishiga imkoniyat yaratadi. Mana shunday o'zgarishlarga moslasha olmagan tabiat, jamiyat, flora va faunalar dunyosidagi turlar esa kamayib ketadi. Insoniyatning xarakati yerdan shafqatsizlarcha foydalanishni davom ettirar ekan, tabiat unga javoban o'n barobar qilib qaytaradi. Men doimiy ravishda insonlarga, nafaqat global isish, balki barcha muammolarga aloxida e'tibor bilan qarashlarini aytib qolaman. Agar hozirdan boshlab ularni yaxshilashga qaratilgan chora 115 tadbirlar amalga oshirilmasa, afsuski, yaqin kelajakda ekologiyamizda, atmofera, biosfera, gidrosfera va barcha qatlamlarda jiddiy fojea yuz berishi mumkin. Global isishning oldini olish usullaridan biri esa o'simlik va daraxtlarning turli –tuman navlarini ekib ko'paytirish, maydonini kengaytirish hamda issiqxona gazlarining chiqarilishini kamaytirish xisoblanadi.

Chunki o'simliklar doimiy ravishda atmosferadagi CO₂ gazining muvozanatini ushlab turadi va havoni kislorod bilan boyitib beradi. Keling hammamiz xamjixatlikda, birgalikda mo'jizalarga boy tabiatimizni asraylik. O'zimiz yashab turgan tabiatni, atrof-muhitni toza saqlaylik. Biz va barcha tirik organizmlar nafas olayotgan havoni ifloslanishini oldini olaylik, turli xil gazlardan zaharlanishi va uning oqibatida sodir bo'layotgan salbiy, ayanchli hodisalarni oldini olishni insoniylik burchimiz deb bilaylik.

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TALABALAR PEDAGOGIK AMALIYOTINI DASTURIY-METODIK TA'MINOTINI TAKOMILLASHTIRISH

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Annotatsiya: Mazkur maqola talabalar pedagogik amaliyotining samaradorligini oshirish maqsadida dasturiy-metodik ta'minotni takomillashtirish zaruriyatini yoritadi. Unda zamonaviy ta'lim jarayonlarida raqamli texnologiyalardan foydalanishning ahamiyati, pedagogik amaliyotda nazariy bilimlarni amaliy faoliyat bilan mustahkamlashda dasturiy-metodik ta'minotning o'rni muhokama qilinadi. Pedagogik amaliyot jarayonida talabalarning o'qituvchilik ko'nikmalarini rivojlantirish va raqamli vositalardan foydalanishni o'rgatish orqali ularning kasbiy kompetensiyalari shakllantiriladi. Dasturiy-metodik ta'minotni takomillashtirishning afzalliklari sifatida interaktiv o'qitish, samaradorlikni oshirish va doimiy nazorat qilish imkoniyatlari keltiriladi. Shuningdek, zamonaviy texnologiyalardan samarali foydalanish ta'lim jarayonini boyitib, talabalarni raqobatbardosh mutaxassis sifatida tayyorlashda muhim omil ekanligi ta'kidlanadi.

Kalit so'zlar: Pedagogik amaliyot, dasturiy-metodik ta'minot, raqamli texnologiyalar, o'qituvchilik ko'nikmalari, masofaviy ta'lim, axborot-kommunikatsiya texnologiyalari (AKT), interaktiv o'qitish, ta'lim platformalari, oliy ta'lim, innovatsion pedagogika.

Ta'lim sohasida pedagogik amaliyot talabalarning nazariy bilimlarini amaliyot bilan mustahkamlashda muhim bosqich hisoblanadi. Zamonaviy talablarga javob beradigan, raqamli texnologiyalar bilan boyitilgan dasturiy-metodik ta'minot pedagogik amaliyotning samaradorligini oshirish uchun zarur. Pedagogik amaliyot davomida talabalar o'qituvchilik ko'nikmalarini rivojlantirish bilan birga, raqamli vositalardan foydalanishni o'rganishlari ham talab etiladi.

Pedagogik amaliyot – bu talabalar uchun o'qituvchi sifatida professional faoliyatni boshlashdan avval nazariy bilimlarini amalda sinab ko'rish va ulardan foydalanish ko'nikmalarini rivojlantirish uchun muhim jarayon hisoblanadi. Ushbu jarayon o'qituvchilarning:

metodik ko'nikmalarini rivojlantirish;

o'quv jarayonini boshqarish malakasini oshirish;

dars rejasini tuzish va tahlil qilish kabi muhim kompetensiyalarni shakllantiradi.

Dasturiy-metodik ta'minot — bu pedagogik jarayonni qo'llab-quvvatlaydigan, ta'lim jarayonida foydalaniladigan raqamli dasturlar, platformalar

va metodik materiallardan iborat bo‘lib, u quyidagi maqsadlarni amalga oshirishga xizmat qiladi:

O‘quv jarayonini interaktiv va qiziqarli qilish.

Talabalar bilimlarini baholash va tahlil qilishni avtomatlashtirish.

Dars o‘tish jarayonida yangi metod va texnologiyalarni tatbiq etish.

Talabalarning o‘z-o‘zini nazorat qilish va mustaqil ishlash malakasini rivojlantirish.

Dasturiy-metodik ta‘minotni takomillashtirish zaruriyati hozirgi zamon talablari pedagogik amaliyotda o‘zgarishlar qilishni talab qiladi. Dasturiy-metodik ta‘minotni takomillashtirish orqali quyidagi muammolarni hal qilish mumkin:

Innovatsion texnologiyalardan foydalanish: Ta‘lim jarayonida zamonaviy texnologiyalardan foydalanish talabalarning o‘qituvchi sifatidagi tayyorgarligini yangi bosqichga ko‘taradi. Masalan, raqamli ta‘lim platformalaridan foydalanish pedagogik jarayonni yanada moslashuvchan va samarali qiladi.

Masofaviy ta‘lim imkoniyatlari: Pandemiya va boshqa global o‘zgarishlar natijasida ta‘lim jarayonida masofaviy o‘qitishning dolzarbligi oshdi. Bu esa pedagogik amaliyotni raqamli va masofaviy texnologiyalar yordamida tashkil qilish zaruratini keltirib chiqardi. Masofaviy ta‘lim platformalari va onlayn o‘qitish vositalari bilan ishlash bo‘yicha metodik qo‘llanmalarining mavjudligi talabalar amaliyotini yuqori darajada tashkil etishga yordam beradi.

Axborot-kommunikatsiya texnologiyalaridan foydalanish: AKT vositalaridan foydalanish nafaqat o‘quv jarayonini boshqarish, balki o‘quvchilarning faoliyatini tahlil qilish va nazorat qilish imkoniyatini beradi. Masalan, onlayn testlar, savol-javob dasturlari yoki bilimlarni avtomatik baholash vositalaridan foydalanish o‘qitish jarayonini avtomatlashtirish va uning samaradorligini oshirishga yordam beradi.

Pedagogik amaliyot jarayonida foydalaniladigan dasturiy vositalar va platformalar o‘quv jarayonining samaradorligini oshirishga qaratilgan. Ular quyidagilar bo‘lishi mumkin:

Ta‘lim platformalari: Google Classroom, Microsoft Teams, Moodle kabi platformalar darslarni tashkil etish, resurslarni almashish, topshiriqlarni monitoring qilishda yordam beradi.

Virtual laboratoriyalar: Fanlarga oid amaliy mashg‘ulotlarni virtual muhitda o‘tkazish imkonini beradi.

Onlayn test va baholash tizimlari: Kahoot, Quizlet kabi tizimlar talabalar bilimini sinash va baholashning zamonaviy vositalari hisoblanadi.

Pedagogik amaliyotni dasturiy-metodik jihatdan qo‘llab-quvvatlash afzalliklari:

Интерактив o'qitish: Elektron platformalar va dasturiy vositalardan foydalanish o'quv jarayonini yanada interaktiv qiladi.

Сamaradorlik: Dasturiy vositalar orqali pedagogik amaliyotni avtomatlashtirish o'qituvchining vaqtini tejaydi va darslarni samarali rejalashtirishga yordam beradi.

Doimiy nazorat va tahlil: Talabning rivojlanishini kuzatish, ularga kerakli ko'rsatmalar berish va shaxsiy o'sishlarini nazorat qilish uchun dasturiy vositalar muhim.

Bugungi kunda zamonaviy oliy ta'limda intellektual sohaga katta e'tibor berilib, birinchi navbatda talabalarning global axborot resurslaridan har tomonlama foydalanishga qaratilgan faoliyatini rivojlantirish alohida o'rin tutmoqda. Bu esa, avvalo, axborot jamiyatida oliy ta'lim muassasasini eng so'ngi kompyuter va axborot texnologiyalariga bilan ta'minlashni, oliy ta'lim muhitida axborotni tahlil qilish, qayta ishlash, almashish imkonini oshirishni hamda oliy ta'lim muassasalari professor-o'qituvchilarini axborot bilan ishlash kompetensiyasini rivojlantirishni talab etadi.

Zamonaviy tadqiqotchilar pedagog uchun quyidagi kompetentsiya turlarini ajratib ko'rsatishmoqda⁹:

Kognitiv kompetentsiya - bu kognitiv faoliyat ko'nikmalari va qobiliyatlari yig'indisidir. Maqsadlarni belgilash, rejalashtirish, tahlil qilish, mulohaza yuritish, o'z faoliyatining muvaffaqiyatini o'z-o'zini baholash mexanizmlariga ega bo'lish. Nostandart vaziyatlarda harakat qilish usullariga, muammolarni hal qilishning evristik usullariga ega bo'lish. O'lchov ko'nikmalariga ega bo'lish, statistik va boshqa bilim usullaridan foydalanish.

Axborot kompetensiyasi - axborot texnologiyalari yordamida kerakli axborotni mustaqil izlash, tahlil qilish, tanlash, qayta ishlash va uzatish qobiliyatidir.

Kommunikativ kompetentsiya - bu boshqa odamlar bilan muloqot qilish qobiliyati, guruhda ishlash qobiliyati. Turli ijtimoiy rollar bilan tanishtirish. Falsafiy antropologiya, ekzistensial psixologiya, gumanistik yo'riqnomalar g'oyalari asoslanib, zamonaviy pedagogik nazariya mutaxassis tayyorlashga madaniy, sinergetik, shaxsiyat-faollik, shaxsga yo'naltirilgan, individual ijodiy yondashuvlarni e'lon qiladi. Ushbu yondashuvlar mutaxassisning kasbiy rivojlanish jarayonini individual ta'lim sharoitida tasavvur qilish imkonini beradi.

⁹ Тлеубердиев Б.М., Рысбаева Г.А., Медетбекова Н.Н. Профессиональная компетентность педагога // Международный журнал экспериментального образования. – 2013. – № 10-1. – С. 47-50; URL: <https://expeducation.ru/ru/article/view?id=4119>

Zamonaviy jamiyatdagi ta'lim taraqqiyoti raqamli texnologiyalarni rivojlantirish bilan bog'liq bo'lib, ulardan foydalanish innovatsion jamiyatning axborot muhitini sezilarli darajada o'zgartirdi va ta'lim sifatini oshirishga imkoniyat yaratdi:

metodika va mazmun tanlash strategiyalarini takomillashtirish natijasida, an'anaviy fanlarni o'qitishga o'zgartirishlar kiritildi;

o'quv jarayonining samaradorligini oshirish, uni individuallashtirish va farqlashga sharoit yaratdi;

o'quv jarayonida professor-o'qituvchi va talaba faoliyatining mazmuni va xususiyatini o'zgartiruvchi o'zaro hamkorlikning yangi shakllari joriy etildi;

o'quv jarayonini boshqarishni takomillashtirish, talabalarning o'qishga bo'lgan motivatsiyasini rivojlantirdi;

talabalarni fanlar asoslarini o'rganishga jalb etish va uning axborot jamiyatida aqliy faoliyatga tayyorligini oshirdi¹⁰.

Bugungi kunda oliy ta'limda ta'limni axborotlashtirish va raqamlashtirish masalasi bilan turli fan sohalari (pedagogika, psixologiya, informatika, sotsiologiya va boshqalar) shug'ullanmoqda.

Talabalar pedagogik amaliyotini dasturiy-metodik ta'minot bilan yanada takomillashtirish hozirgi ta'lim jarayonini yangi bosqichga olib chiqadi. Zamonaviy texnologiyalardan samarali foydalanish nafaqat pedagogik jarayonni boyitadi, balki talabalarni raqobatbardosh mutaxassis sifatida shakllantirishga ham yordam beradi. Shu bilan birga, dasturiy-metodik ta'minotni takomillashtirish talabalar amaliyotini yanada qiziqarli va samarali qilishda muhim ahamiyatga ega.

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TALABALARNI O'QITISH JARAYONIDA HISOBLASH EKSPERIMENTLARINI DASTURIY VOSITALAR YARATISHNING NAZARIY ASOSI

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Annotatsiya ushbu maqolada talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar yordamida yaratish jarayoni **nazariy asoslarga** tayanadi. Ushbu asoslar dasturiy vositalarning strukturasi, algoritmlari va modellarini ishlab chiqish uchun zarur bo'lgan bilimlarni o'z ichiga oladi. Quyida hisoblash eksperimentlarini dasturiy vositalar yordamida yaratishning asosiy nazariy masalalari yoritilgan.

Keywords: dasturiy vositalar, grafiklar, diagrammalar, 3D modellar va interaktiv interfeyslar

Kirish

Talabalarni o'qitish jarayonida hisoblash eksperimentlari va ularni dasturiy vositalar yordamida amalga oshirish zamonaviy ta'limning muhim jihatlaridan biri hisoblanadi. Hisoblash eksperimentlari, ayniqsa, texnika va tabiiy fanlar sohasida tahsil olayotgan talabalarga nazariy bilimlarni amaliyot bilan uyg'unlashtirish, murakkab jarayonlarni tahlil qilish va modellashtirish imkonini beradi [5].

Dasturiy vositalar yordamida hisoblash eksperimentlarini o'tkazish nafaqat o'quv jarayonini soddalashtiradi, balki o'qitish samaradorligini oshirishga, talabalarning mantiqiy va analitik fikrlash qobiliyatlarini rivojlantirishga ham ko'maklashadi. Talabalarning mustaqil fikrlashi, ijodiy yondashuvi, ilmiy tadqiqot va tajribalarni o'tkazish qobiliyatlarini shakllantirishda hisoblash eksperimentlarining ahamiyati juda katta.

Bu tadqiqotning maqsadi — hisoblash eksperimentlarini dasturiy vositalar yordamida samarali tashkil etishning nazariy asoslarini yoritishdir. Shu orqali talabalarni o'quv jarayonida axborot texnologiyalari va hisoblash dasturlaridan samarali foydalanishga o'rgatish, ularning amaliy va nazariy bilimlarini mustahkamlashga erishish mumkin bo'ladi. [14].

Ushbu usulning takomillashishi raqamli texnologiyalar va dasturiy ta'minotlarning yanada keng joriy qilinishiga bog'liq bo'lib, bu esa ta'lim sifatini oshirish, talabalarning o'zlashtirish darajasini yuksaltirish va ularni kelajakdagi kasbiy faoliyatga yaxshiroq tayyorlash imkonini beradi. Ayniqsa, algoritmlash va

dasturlash ko'nikmalarini o'rganishda hisoblash eksperimentlari talabalarga nazariy bilimlarni real muammolarni yechishga qo'llashga yordam beradi [1].

Adabiyot sharhi

Matematik va dasturchi R.Hamming, "Numerical Methods for Scientists and Engineers" kabi ishlari bilan hisoblash jarayonlarini dasturiy ta'minot yordamida modellashtirishda ilgari surilgan matematik usullarga asos bo'lgan. Uning ishlari talabalarni o'qitish jarayonida hisoblash tajribalarini o'tkazishda qo'llaniladigan matematik modellashtirish va raqamli usullarni ishlab chiqishda muhim hisoblanadi.

Von Neumann raqamli kompyuterlar nazariyasi va dasturlash tillariga asos solgan. Uning ishlari hisoblash eksperimentlarini avtomatlashtirish uchun dasturiy vositalarni yaratishda muhim ahamiyatga ega. Uning matematik modellar va algoritmlar bo'yicha ishlari bugungi kunda ham dasturiy vositalar yordamida o'quv jarayonida hisoblash eksperimentlarini o'tkazishda asosiy manbalardan biridir.

V.Z.Vohidov O'zbekiston matematikasi va fizika-matematika yo'nalishidagi olimlardan biri bo'lib, hisoblash texnologiyalari va kompyuter yordamida matematik modellashtirish sohasida katta izlanishlar olib borgan. U kompyuter texnologiyalarini ta'lim jarayoniga joriy etishda, ayniqsa hisoblash eksperimentlari bo'yicha dasturiy vositalar yaratishda hissa qo'shgan.

Metodlar

Nazariy asoslar modellashtirish, algoritm tuzish, tizim va texnologiyalarni tanlash va amaliy tajribalarni tashkil etish kabi jihatlarni o'z ichiga oladi. Quyida hisoblash eksperimentlarini dasturiy vositalar yordamida yaratishning asosiy nazariy jihatlari keltiriladi.

1. Matematik modellashtirish nazariyasi

Matematik modellashtirish jarayoni talabalarga murakkab real jarayonlarni tushunish, tahlil qilish va optimallashtirish uchun matematik vositalardan foydalanishni o'rgatadi. Modellashtirishning nazariy asoslari quyidagilarga asoslanadi:

- Differensial tenglamalar – turli fizik, iqtisodiy va texnik jarayonlarni tavsiflash uchun.
- Statistik modellar – ma'lumotlarni tahlil qilish va ulardan prognoz chiqarish.
- Optimallashtirish usullari – resurslarni taqsimlash va tizim samaradorligini oshirish.
- Sonli usullar – murakkab matematik tenglamalarni yechishda qo'llaniladigan raqamli algoritmlar.

Dasturiy vositalar shu nazariyalarga asoslanib, talabalarga har xil jarayonlarni modellashtirish va tahlil qilish imkonini beradi.

2. Algoritmalar va sonli tahlil nazariyasi

Hisoblash eksperimenti dasturiy vositalari algoritmalar nazariyasi va sonli tahlil usullari asosida quriladi. Algoritmalar samaradorligi va aniqligi eksperiment natijalarining to'g'riligi va tezligini belgilaydi. Asosiy nazariy jihatlar:

- Algoritmning murakkabligi – hisoblash jarayonining samaradorligi va vaqt sarfini hisobga olish.
- Sonli usullar – yaqinlashish masalalari, integrallar va differensial tenglamalarni yechish (masalan, Eyler usuli, Nyuton usuli).
- Matritsalar va chiziqli algebra – ko'p o'lchovli modellarni tahlil qilishda ishlatiladi.
- Iteratsion usullar – takrorlanadigan hisoblashlarda aniqlikni oshirish va natijalarni optimallashtirish.

Dasturiy vositalar yuqoridagi algoritmalar asosida modellarni yechib beradi va hisoblash jarayonini tezlashtiradi.

3. Simulyatsiya va tajriba nazariyasi

Simulyatsiya nazariyasi turli jarayonlarni virtual muhitda tasvirlash va o'rganish imkonini beradi. Ushbu nazariya hisoblash eksperimentlarining asosini tashkil qiladi:

- Stoxastik jarayonlar – tasodifiy o'zgaruvchilar bilan bog'liq jarayonlarni modellashtirish (masalan, Monte-Karlo simulyatsiyasi).
- Deterministik simulyatsiya – qat'iy qoidalar asosida rivojlanadigan jarayonlarni modellashtirish.
- Agentga asoslangan modellashtirish – murakkab tizimlarda individual agentlarning o'zaro ta'sirini simulyatsiya qilish.
- Jismoniy jarayonlarni o'xshatish – masalan, suyuqlik oqimi, harorat tarqalishi va elektromagnit maydonlar kabi jarayonlarni kompyuterda sinab ko'rish.

Simulyatsiya jarayonida tajribalar talabalarga tizimning turli parametrlar ta'sirida qanday o'zgarishini kuzatish va tahlil qilish imkoniyatini beradi.

4. Dasturlash nazariyasi va til tanlash

Dasturiy vositalarni yaratishda dasturlash tilini tanlash va tuzish nazariyasi muhim ahamiyatga ega. Har bir dasturlash tili o'ziga xos xususiyatlarga ega bo'lib, hisoblash va modellashtirish jarayonlarini samarali tashkil etishda qo'llaniladi. Bu yerda quyidagi nazariyalar asos bo'ladi:

- Algoritmni dasturlash – hisoblash vazifalarini avtomatlashtirish va matematik jarayonlarni kodlash.
- Obyektga yo'naltirilgan dasturlash – katta hajmdagi hisoblashlarni modul yoki ob'ekt asosida tashkil qilish.
- Parallel dasturlash – ko'p yadroli protsessorlar yordamida bir nechta hisoblashlarni bir vaqtning o'zida bajarish.
- Simbolik dasturlash – murakkab matematik ifodalarni kodlash va tahlil qilish uchun (Mathematica, Maple kabi tillar).

Hisoblash vositalarini yaratishda talabalarga Python, MATLAB, R, C++ kabi tillar o'rgatiladi.

5. Verifikatsiya va validatsiya nazariyasi

Dasturiy vositalarning to'g'ri ishlashini ta'minlash uchun verifikatsiya va validatsiya jarayonlari muhim. Bu jarayonlar modellarni va dasturlarni haqiqatga mosligini, ya'ni ularning to'g'ri ishlayotganini tasdiqlash uchun qo'llaniladi. Nazariy asoslar:

- Verifikatsiya – dastur kodining to'g'ri yozilganini tekshirish.
- Validatsiya – dastur modellarining real dunyo jarayonlariga mos kelishini ta'minlash.
- Sinov va xatolarni tahlil qilish – dasturiy ta'minotda bo'lishi mumkin bo'lgan xatolarni oldini olish va tuzatish.

Hisoblash eksperimentlarida bu jarayonlar natijalar aniqligini oshiradi.

6. O'quv jarayoniga integratsiya

Dasturiy vositalarning o'quv jarayoniga integratsiyasi o'quv dasturlarini tuzishda muhim nazariy asoslarni talab qiladi:

- Didaktik tamoyillar – modellashtirish vositalarining o'qitish metodikasi bilan mos kelishini ta'minlash.
- Interfaol o'qitish – talabalar bilan o'zaro ta'sirda bo'lgan amaliyotlar orqali bilimlarni mustahkamlash.
- Masofaviy ta'lim – dasturiy vositalarni masofadan turib qo'llash imkoniyatlarini o'rganish.
- Texnologik pedagogika – texnologiyalar orqali o'qitish jarayonini samarali tashkil qilish nazariyasi.

7. Ma'lumotlar tahlili va sun'iy intellekt

Hisoblash eksperimentlarini tashkil etishda ma'lumotlar tahlili va sun'iy intellekt asoslari ham qo'llaniladi. Talabalar katta hajmdagi ma'lumotlarni qayta ishlash va natijalarni tahlil qilish ko'nikmalarini rivojlantiradi:

Katta ma'lumotlar – katta hajmdagi eksperimental ma'lumotlarni tahlil qilish.

Ma'lumotlarni oldindan qayta ishlash – keraksiz yoki noto'g'ri ma'lumotlarni filtrlash.

Sun'iy intellekt va mashina o'rganishi – murakkab hisoblash jarayonlarini avtomatlashtirish va prognoz qilish.

Bu vositalar yordamida talabalarga katta hajmdagi ma'lumotlarni tahlil qilish va o'quv jarayoniga ilg'or texnologiyalarni integratsiya qilish ko'nikmalari beriladi.

Xulosa

Hisoblash eksperimentlarini dasturiy vositalar yordamida yaratishning nazariy asosi matematik modellashtirish, algoritmlar nazariyasi, simulyatsiya, dasturlash va o'quv jarayoniga texnologiyalarni integratsiya qilishni o'z ichiga oladi. Ushbu nazariy bilimlar asosida yaratilgan vositalar talabalar uchun o'quv jarayonini interaktiv, amaliy va qiziqarli qilishda katta yordam beradi. Dasturiy vositalar orqali talabalar amaliyot va nazariy bilimlarni mustahkamlash imkoniga ega bo'ladi.

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TALABALARNI O'QITISH JARAYONIDA HISOBLASH EKSPERIMENTLARINI DASTURIY VOSITALAR ASOSIDA TASHKIL ETISHNI TAKOMILLASHTIRISH

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***AAnnotatsiya** ushbu maqolada talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar o'rni haqida so'z borgan. Unda rivojlanish davrida oliy ta'lim muassasalari talabalarini zamon talablariga monand, ishlab chiqarish texnikalarini amaliyotda qo'llay olishni takomillashtirish bugungi kunning dolzarb masalalari yoritilgan.*

***Keywords:** dasturiy vositalar, grafiklar, diagrammalar, 3D modellar va interaktiv interfeyslar*

Kirish

Hozirgi kunda kompyuter modellashtirish inson faolliyatiining turli sohalarida qo'llaniladigan ilg'or tadqiqot usullaridan biri bo'lib bormoqda. Hisoblash eksperimenti kompyuter simulyatsiyasining bir turi hisoblanadi.

Talabalarni (matematik masalalarni) o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar asosida tashkil etishni takomillashtirish zamonaviy ta'limda muhim ahamiyat kasb etmoqda. Bugungi kunda texnologiyaning tez rivojlanishi o'qituvchilarga o'quv jarayonini yanada interaktiv va samarali qilish imkonini beradi. Xususan, dasturiy vositalardan foydalanish nafaqat nazariy bilimlarni mustahkamlash, balki amaliy ko'nikmalarni rivojlantirish uchun ham zarurdir. Hisoblash eksperimentlari orqali talabalar turli matematik muammolarni mustaqil ravishda yechishni o'rganadilar va bu ularda mantiqiy tafakkur, analitik ko'nikmalar va ijodiy yondashuvni shakllantiradi. [14].

Ushbu usulning takomillashishi raqamli texnologiyalar va dasturiy ta'minotlarning yanada keng joriy qilinishiga bog'liq bo'lib, bu esa ta'lim sifatini oshirish, talabalarning o'zlashtirish darajasini yuksaltirish va ularni kelajakdagi kasbiy faoliyatga yaxshiroq tayyorlash imkonini beradi. Ayniqsa, algoritmlash va dasturlash ko'nikmalarini o'rganishda hisoblash eksperimentlari talabalarga nazariy bilimlarni real muammolarni yechishga qo'llashga yordam beradi [1]

Adabiyot sharhi

Talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar asosida tashkil etish masalasiga turli olimlar va pedagogik mutaxassislar qiziqish

bildirgan. Quyida ushbu sohada tadqiqotlar olib borgan ba'zi olimlar va ularning qarashlari haqida qisqacha ma'lumot keltiriladi:

Johan Kepler va Galileo Galilei - Bu olimlar o'zlarining ilmiy kashfiyotlari va tajribalarida hisoblash jarayonlari va eksperimentlarga katta e'tibor berishgan. Ularning tadqiqotlari bugungi kunda o'qituv jarayonida hisoblash eksperimentlarini qo'llashning nazariy asoslarini yaratishga xizmat qilgan.

Seymour Papert - U kompyuter yordamida o'qitishni rivojlantirish bo'yicha ishlari bilan mashhur. Papert "Matematika laboratoriyalari" va "Logo" dasturlash tilini rivojlantirgan, bu o'quvchilarga hisoblash eksperimentlari orqali matematik tushunchalarni o'rganish imkonini bergan.

Lev Vygotsky - Uning ijtimoiy madaniy nazariyasi o'quvchilarning eksperimentlar va amaliyot asosida bilim olish jarayonini rivojlantirishning muhimligini ta'kidlaydi. Uning izlanishlari hisoblash eksperimentlari orqali talabani o'qituvchining ko'magi bilan yangi bilimlarga ega bo'lish imkoniyatini o'rgangan.

Douglas C. Engelbart - Hisoblash texnologiyalarining ta'limda qo'llanilishi bo'yicha innovatsion tadqiqotlari bilan mashhur bo'lgan bu olim, kompyuter vositalaridan foydalangan holda ta'lim jarayonlarini takomillashtirish bo'yicha bir qancha amaliy ishlanmalarni amalga oshirgan.

Uzbek olimlaridan Mirziyoev Shavkat boshchiligida O'zbekistonda raqamli texnologiyalarni joriy qilish borasida qator dasturlar ishlab chiqilgan. Bu dasturlar ilmiy-pedagogik tadqiqotlar uchun sharoit yaratib, hisoblash eksperimentlarini rivojlantirishga turtki bo'ldi.

Qodirjon Abdullayev, Jasur Xudayberganov kabi pedagog-olimlar O'zbekistonda hisoblash texnologiyalari yordamida o'quv jarayonini samarali tashkil etish bo'yicha tadqiqot olib borishgan.

Ushbu olimlarning tadqiqotlari va amaliy ishlari talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar asosida tashkil qilishda asosiy ko'rsatmalar va yondashuvlar beradi. Ushbu yo'nalishda olib borilgan tadqiqotlar ilm-fan va texnologiyaning yutuqlarini ta'limga integratsiya qilishni tezlashtiradi.

Bundan tashqari, hisoblash eksperimentlarini dasturiy vositalar asosida tashkil qilish o'quv jarayonini individuallashtirish, har bir talabani ehtiyojlari va qobiliyatlariga moslashtirish imkoniyatini yaratadi. Shu sababli, bu yo'nalishdagi tadqiqotlar va amaliy ishlar, ta'lim sohasidagi ilg'or texnologiyalarni qo'llashni yanada rivojlantirish, matematik va texnik fanlar o'qitish samaradorligini oshirish uchun muhim sanaladi.

1. Zamonaviy dasturiy vositalarni joriy etish

Hisoblash eksperimentlarini samarali tashkil qilish uchun zamonaviy dasturiy vositalar va platformalarni joriy etish zarur. Bu vositalar o'quv jarayonini osonlashtiradi va talabalar o'z bilimlarini amaliyotda qo'llash imkoniyatiga ega bo'ladilar.

Metodlar

Dasturiy vositalar sifatida quyidagilarni misol qilish mumkin:

MATLAB, Python (NumPy, SciPy, Matplotlib)

Maple, Mathematica

R, Octave Bu vositalar talabalar uchun matematik modellashtirish, statistika, va hisoblash eksperimentlarini bajarishda juda qo'l keladi.

2. Simulyatsiya va modellashtirishdan foydalanish

Hisoblash eksperimentlari orqali murakkab fizik, kimyoviy yoki ijtimoiy jarayonlarni tushuntirish imkoniyati mavjud. Dasturiy simulyatsiyalar va modellashtirish texnikalari orqali talabalar nazariy tushunchalarni osonroq anglab olishadi.

Fizika va muhandislikda: mexanik va elektromagnit maydon simulyatsiyalari.

Biologiya va kimyo: hujayra o'sishi, kimyoviy reaksiyalar modellashtirish.

Iqtisodiyot va ijtimoiy fanlar: tahliliy modellar asosida statistik tadqiqotlar.

3. Hisoblash texnikasi va algoritmlarni tushuntirish

Talabalarni zamonaviy dasturlash texnikasi va algoritmlar bilan tanishtirish ularning eksperimental ishlarga tayyorligini oshiradi. Algoritmlarni to'g'ri qo'llash va uni optimallashtirish bilimlarini chuqurlashtirish maqsadida talabalarga quyidagilar o'rgatiladi:

Matematik modellashtirishga asoslangan algoritmlar.

Chiziqli va noan'anaviy tenglamalar yechimi uchun hisoblash metodlari (Nyuton usuli, integral hisoblash, iterativ metodlar).

Statistik tahlil va ma'lumotlarni qayta ishlash texnikalari.

4. Masofaviy ta'limda dasturiy vositalardan foydalanish

Masofaviy ta'lim jarayonida hisoblash eksperimentlarini samarali tashkil etish uchun bulutli platformalar va onlayn laboratoriyalarni joriy etish muhimdir. Masofaviy o'qitish orqali talabalar quyidagi afzalliklarga ega bo'lishadi:

Masofadan turib hisobotlarni topshirish va o'z ustida ishlash.

Virtual laboratoriyalar orqali tajribalarni real vaqt rejimida bajarish.

Interaktiv muhitda eksperimentlarni simulyatsiya qilish.

5. Interaktiv o'quv muhitlarini yaratish

Dasturiy vositalar yordamida talabalar uchun interaktiv o'quv muhitlarini yaratish ularga o'rganayotgan fanlarni chuqurroq anglash imkonini beradi. Bunda talabalar o'z bilimlarini interaktiv modullar orqali mustahkamlaydilar:

LMS (Learning Management System) tizimlari bilan integratsiya.

Quizlar, loyihalar va amaliy mashg'ulotlar orqali o'zlashtirishni mustahkamlash.

O'quv video va multimedia materiallari orqali bilimni kengaytirish.

6. Amaliy loyihalar asosida o'rgatish

Hisoblash eksperimentlarini amaliyotga tatbiq etish orqali talabalar real dunyo masalalarini hal qilishga tayyor bo'ladi. Bu jarayonda talabalarga mustaqil ilmiy-tadqiqot loyihalarini bajarish topshiriladi:

Loyihalar orqali ilmiy yoki texnologik masalalarni yechish.

Hisoblash eksperimentlari natijalari bo'yicha tahliliy hisobotlar tayyorlash.

Natijalarni vizualizatsiya qilish (grafiklar, diagrammalar va simulyatsiyalar).

7. Dasturiy platformalarni rivojlantirish va yangilash

O'quv jarayonida dasturiy vositalarning samarali qo'llanilishi uchun ular muntazam ravishda yangilanib, zamonaviy texnologiyalar bilan rivojlantirilib borilishi kerak. Shuningdek, talabalarni dasturiy vositalar bilan ishlash bo'yicha muntazam trening va seminarlarga jalb qilish muhimdir.

Xulosa

Talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar asosida tashkil etish ta'lim jarayonini yanada interaktiv va samarali qiladi. Zamonaviy dasturiy vositalardan foydalanish o'quv jarayonini qiziqarli va amaliyotga yo'naltirilgan holga keltiradi, bu esa talabalar uchun ilmiy va texnik ko'nikmalarni rivojlantirishda katta yordam beradi.

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MODELING OF COMPUTING EXPERIMENTS IN THE PROCESS OF STUDENT EDUCATION USING SOFTWARE TOOLS

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Abstract: *This article talks about the modeling of computing experiments using software tools in the process of teaching students, it considers the issues of developing the practical and theoretical skills of students while organizing the process of modeling computing experiments using software tools in the process of teaching.*

Keywords: *computational experiments, modeling process, statistical analysis*

Introduction

The changing views on the role and goals of education on a global scale has activated the search for new forms, methods and tools of education, innovative approaches to its organization in higher education institutions. In this regard, modeling of mathematics and related computational experiments using software tools is no exception.

In the process of teaching students, organizing the process of modeling computational experiments using software tools serves to deepen knowledge and develop students' practical and theoretical skills. The use of modeling in teaching makes it easier to understand real processes and solve complex scientific problems. [2].

Literature Review

Donald Knuth made major contributions to the theory of software and algorithms. His work "The Art of Computer Programming" is one of the main sources for mathematical modeling of computing processes and explanation of algorithms. His work is important in the development of software tools based on mathematical theories of computational processes. In particular, knowledge of algorithms and programming theory is important in creating and modeling computational experiments [1].

Methods

Detailed information is provided on the importance and methods of modeling computational experiments using software tools.

1. Purpose and advantages of modeling

Modeling explains real-world processes based on a mathematical or algorithmic model and allows students to analyze these processes. Advantages of computational models:

Simplifying complex problems and basing them on a clear model to solve real-world problems in practice.

The ability to conduct experiments in a safe and inexpensive way in a virtual environment.

Ability to analyze future situations by forecasting and testing experimental results.

To enable students to put theoretical knowledge into practice.

2. Software tools used in modeling

Software tools used in modeling computational experiments can be based on multidisciplinary and specialized applications. Below are the most common software tools:

MATLAB is used to create, analyze and optimize mathematical models.

Python is suitable for mathematical and scientific computing with its extensive libraries (NumPy, SciPy, Matplotlib).

Simulink is a MATLAB-based program that allows you to simulate dynamic systems.

R is a convenient tool for statistical analysis and data modeling.

Octave is a free alternative to MATLAB, used for mathematical modeling and calculations.

Wolfram Mathematica is a convenient program for mathematical and algorithmic modeling.

COMSOL Multiphysics - for modeling and analyzing multiphysics systems.

Results and Discussions

The following steps are recommended for effective modeling:

1. Setting the issue

The theoretical basis of the process or problem that students are studying should be clearly explained. For example:

When modeling physical phenomena: electric field, temperature distribution or substance diffusion analysis.

Statistical analysis in modeling: data set exploration and statistical prediction.

2. Creating a model

Students are taught to create a mathematical or algorithmic model of a problem. Here are the students:

Model the process using differential equations, algebraic expressions, or statistical equations.

They learn how to simulate various behaviors of processes through algorithmic modeling.

3. Calculation and analysis

Based on the model, the results are calculated using software tools. Students at this stage:

They determine the parameters and study their effect on the result.

They repeat and analyze the modeled process to optimize algorithms, reduce calculations and obtain more accurate results.

4. Visualization of results

It is important that the calculation results are displayed visually. Students use the following tools:

Graphs, diagrams, 3D models and simulations.

Study the results in different conditions and analyze them.

5. Testing and verification of experiments

To check the level of validity of the modeled process, students are given the opportunity to compare it with the results of the experiment. For example:

Comparison of physical models with laboratory experiments.

Comparison of statistical forecasts with real data.

Validation of simulation results by real experience.

4. Implementation of computational models in education

The use of computational models in various subjects increases the effectiveness of education. Modeling helps students understand complex processes in practice:

Physical and technical sciences: mechanics, electromagnetic field, thermodynamic processes.

Biology and chemistry: cell growth, chemical reactions, ecological models.

Economics and social sciences: economic forecasting, statistical analysis and trend modeling.

5. Remote modeling

Modeling in distance education can be done using software tools. This process is more easily organized through cloud platforms and online laboratories. Students:

Modeling experiments are conducted remotely through cloud computing platforms.

They perform experiments in real time through virtual laboratories.

6. Organization of research projects

Modeling with the help of software tools helps students organize scientific research. Searching for solutions to scientific problems and evaluating results is taught based on modeling. Students in scientific projects:

They learn to use computational techniques, independently model and analyze them.

They will have the opportunity to enrich scientific work by calculating the results of experiments and visualizing them.

Conclusion

Modeling computational experiments with the help of software tools in the process of teaching students makes it easier to put knowledge into practice and understand complex scientific processes. Modeling through modern software tools develops students' research skills, prepares them for modern technologies and strengthens theoretical knowledge.

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TALABALARNI O'QITISH JARAYONIDA HISOBLASH EKSPERIMENTLARINI DASTURIY VOSITALAR YARATISHNING METODALOGIK ASOSI

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Annotatsiya ushbu maqolada talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar o'rni haqida so'z borgan. Unda rivojlanish davrida oliy ta'lim muassasalari talabalarini zamon talablariga monand, ishlab chiqarish texnikalarini dasturiy vositalar yaratishning metodologik masalalari yoritilgan.

Keywords: *dasturiy vositalar, grafiklar, diagrammalar, 3D modellar va interaktiv interfeyslar*

Kirish

Hozirgi kunda talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar tatbiq etish ommalashib bormoqda. Talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar yordamida yaratishning metodologik asosi o'quv jarayonini samarali va interaktiv qilib tashkil etishga qaratilgan. Bu metodologiya o'quv maqsadlari, talabalarning bilim darajasi, texnologiyalarning imkoniyatlari va pedagogik tamoyillarni hisobga olgan holda yaratiladi.

Talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar yaratishda muhim hissa qo'shgan olimlar turli ilmiy yo'nalishlarda ishlashgan va o'quv jarayonida axborot texnologiyalaridan foydalanish bo'yicha katta tajriba to'plagan [14].

Adabiyot sharhi

Seymour Papert mashhur konstruksionizm nazariyasining asoschilaridan biri bo'lib, uning ishlari hisoblash eksperimentlari uchun dasturiy vositalarni o'quv jarayoniga joriy etishda katta rol o'ynagan. Uning "Mindstorms: Children,

Computers, and Powerful Ideas" asari kompyuter dasturlarini o'quv jarayoniga tatbiq qilish va eksperiment qilish jarayonlarini modellashtirishda muhim ahamiyatga ega. U hisoblash eksperimentlari uchun dasturiy vositalarni loyihalashda pedagogik yondashuvlarga asoslangan interaktiv o'quv muhitlarini yaratishni ilgari surgan[1].

Andrey Nikolayevich Kolmogorov ehtimollar nazariyasi va matematik statistika bo'yicha ishlari bilan mashhur. Uning ishlari raqamli modellashtirish, algoritmik usullar va hisoblash texnikalarini rivojlantirishga asos bo'lgan. Uning matematik modellashtirishga oid ishlari o'quv jarayonida hisoblash eksperimentlarini dasturiy vositalar yordamida modellashtirishda muhim ahamiyatga ega bo'lgan.

Metodlar

Biz quyida hisoblash eksperimentlari ni dasturiy vositalar orqali tashkil etishning metodologik jihatlari ko'rib chiqamiz:

1. O'quv maqsadlarini aniqlash:

Hisoblash eksperimentlarini tashkil etishdan avval aniq o'quv maqsadlarini belgilash juda muhim. Bu maqsadlar quyidagicha aniqlanishi kerak:

Matematik tushunchalar va hisoblash usullarini o'rganish – talabalar uchun dasturiy vositalar matematik modellar, algoritmlar va raqamli tahlil usullarini tushunishga yordam beradi.

Tajriba o'tkazish va natijalarni tahlil qilish ko'nikmalarini rivojlantirish – talabalar o'zlari turli parametrlarni o'zgartirib, jarayonlarni simulyatsiya qilish orqali natijalarni o'rganadilar.

Murakkab tizimlarni modellashtirish va muammolarni yechish – dasturiy vositalar talabalarni muammolarni modelda yechishga yo'naltiradi.

Metodologik asos talabalarga jarayonlarni yanada chuqurroq tushunishga yordam beradigan aniq o'quv maqsadlariga erishishni ta'minlashi kerak.

2. Pedagogik yondashuv:

Dasturiy vositalarni yaratishda pedagogik tamoyillarga asoslangan metodologik yondashuv talabalarni o'qitish jarayonini interaktiv va qiziqarli qilib tashkil etishga yordam beradi. Asosiy pedagogik yondashuvlar:

loyihalash – talabalar o'z bilimlarini o'z tajribalari orqali mustahkamlaydilar. Hisoblash eksperimentlari orqali talabalar real dunyo muammolarini modellashtirib, ularning natijalarini o'rganish orqali bilimlarini kengaytiradilar.

muammoga asoslangan o'quv (problem-based learning) – talabalar muammolarni aniqlab, dasturiy vositalardan foydalangan holda ularni hal qilishadi.

interfaol va amaliy o'quv – o'qitish jarayonida dasturiy vositalar talabalarning faol ishtirokini ta'minlaydi, bu ularning bilim va ko'nikmalarini yanada mustahkamlaydi.

individual va kooperativ o'qitish – dasturiy vositalar individual mashqlar yoki guruh bo'lib ishlash imkoniyatini beradi, bu esa talabalar orasida hamkorlikni rivojlantiradi.

3. Dasturiy vositalar tanlovi

Dasturiy vositalarni tanlash o'quv maqsadlari va talabalar ehtiyojlariga mos ravishda amalga oshirilishi kerak. Tanlov quyidagi tamoyillar asosida amalga oshiriladi:

foydalanish qulayligi – dasturiy vosita talabalarning texnik bilim darajasiga mos kelishi va oson foydalanish imkoniyatini taqdim etishi kerak.

interaktivlik – dasturiy vositalar interaktiv bo'lib, o'zgaruvchilarni o'zgartirish, natijalarni real vaqtda ko'rish imkoniyatiga ega bo'lishi kerak.

modullik va moslashuvchanlik – vositalar turli mavzularda yoki bilim darajalarida qo'llash uchun moslashuvchan bo'lishi lozimi.

integratsiyalash imkoniyati – mavjud o'quv platformalari yoki boshqa dasturiy vositalar bilan integratsiya qilish imkoniyati bo'lishi kerak.

4. Didaktik modellar

Hisoblash eksperimentlarini tashkil etishda didaktik modellardan foydalanish o'quv jarayonining samaradorligini oshiradi. Didaktik model metodologiyasi quyidagi elementlarni o'z ichiga oladi:

bosqichma-bosqich o'qitish – o'quv jarayonida dasturiy vositalarni bosqichma-bosqich kiritish, ya'ni oddiydan murakkabgacha o'rgatish.

amaliyot va nazariyaning uyg'unligi – talabalarga dasturiy vositalar orqali nazariy bilimlarni amaliyotda sinash imkoniyatini yaratish.

refleksiya va tahlil – talabalar o'zlarining eksperiment natijalarini qayta ko'rib chiqishi, tahlil qilishi va o'rganishi uchun imkoniyat yaratish.

qo'llab-quvvatlovchi materiallar – dasturiy vositalar bilan ishlash uchun o'quv qo'llanmalari, video darsliklar va yordamchi materiallar bilan ta'minlash.

5. Integratsiyalash va moslashuvchanlik

Hisoblash eksperimentlarini yaratish jarayonida dasturiy vositalar o'quv jarayoniga moslashgan bo'lishi va boshqa vositalar bilan oson integratsiyalashishi lozim:

texnologik integratsiya – o'quv jarayonida mavjud platformalar (masalan, Moodle, Blackboard) bilan dasturiy vositalarni integratsiya qilish.

moslashuvchanlik – dasturiy vositalar talabalarning individual ehtiyojlari va bilim darajasiga moslashishi kerak. Talabalar o'z darajalariga qarab turli darajadagi eksperimentlarni bajarishlari mumkin.

platformadan mustaqillik – dasturiy vositalarni turli qurilmalarda (kompyuter, planshet, smartfon) ishlatish imkoniyati.

6. Natijalarni baholash va tahlil qilish

Hisoblash eksperimentlari natijalarini baholash va tahlil qilish metodologiyasi ham muhim ahamiyatga ega. Bunda:

Avtomatlashtirilgan baholash tizimlari – dasturiy vositalar yordamida talabalar natijalarini avtomatik tarzda baholash.

Tahliliy hisobotlar – talabalarning bajarilgan ishlari bo'yicha avtomatik ravishda hisobotlarni yaratish va tahlil qilish imkoniyatlari.

7. Tajribani doimiy yaxshilash

Dasturiy vositalar yordamida tashkil etilgan hisoblash eksperimentlari natijalarini doimiy ravishda tahlil qilib, talabalarning qay darajada muvaffaqiyatga erishganini baholash va metodlarni takomillashtirib borish kerak. Bu jarayon quyidagilarni o'z ichiga oladi:

Foydalanuvchi fikrlari va tahlil – talabalardan va o'qituvchilardan fikrlar olib, ularning tajribasini yaxshilash bo'yicha takliflarni o'rganish.

Tajriba va ma'lumotlar asosida yangilash – dasturiy vositalar natijalarini tahlil qilgan holda yangi funktsiyalarni qo'shish yoki mavjudlarini optimallashtirish.

O'quv jarayonini rivojlantirish – yangi yondashuvlar va metodlarni qo'llash orqali talabalarning bilim olish jarayonini doimiy ravishda yangilab borish.

Xulosa

Hisoblash eksperimentlarini dasturiy vositalar yordamida yaratishning metodologik asosi pedagogik tamoyillar, texnologik yondashuvlar va didaktik modellar bilan chambarchas bog'liqdir. Dasturiy vositalarning tanlanishi va joriy qilinishi o'quv jarayonining samaradorligini oshirish, talabalar uchun qulay va interaktiv muhit yaratish, natijalarni tahlil qilish imkoniyatlarini kengaytirishga qaratilgan bo'lishi kerak. Bu yondashuv talabalarga nazariy bilimlarni amaliyotda qo'llash imkonini beradi va hisoblash eksperimentlarining sifatini oshiradi.

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TALABALARNI O'QITISH JARAYONIDA HISOBLASH EKSPERIMENTLARINI DASTURIY VOSITALAR O'RNI

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***AA**notatsiya ushbu maqolada talabalarni o'qitish jarayonida hisoblash eksperimentlarini dasturiy vositalar o'rni haqida so'z borgan. Unda rivojlanish davrida oliy ta'lim muassasalari talabalarini zamon talablariga monand, ishlab chiqarish texnikalarini amaliyotda qo'llay olidagan va jamoaviy ishlay oladigan kadr qilib tarbiyalash bugungi kunning dolzarb masalalari yoritilgan.*

***Keywords:** dasturiy vositalar, grafiklar, diagrammalar, 3D modellar va interaktiv interfeyslar*

Kirish

Bugungi kunga kelib texnika taraqqiyoti juda tez rivojlanib bormoqda. Har bir soha uchun zamonaviy texnikalar kun sayin yangilanib, mutaxassisdan doimo izlanish talab qilmoqda. Bunday rivojlanish davrida oliy ta'lim muassasalari talabalarini zamon talablariga monand, ish beruvchilar talablariga mos, ishlab chiqarish texnikalarini amaliyotda qo'llay olidagan va jamoaviy ishlay oladigan kadr qilib tarbiyalash bugungi kunning dolzarb masalalaridan biri bo'lib qolmoqda. Bu masalalarning yechimini topish va oliy ta'lim muassasalarda uni amalga oshirish ustida ko'plab islohatlar amalga oshirilib borilyabdi. [14].

Oliy ta'lim muassasalarida umumkasbiy va ixtisoslik fanlarini o'zaro integratsiyasini va kasbga yo'naltirilgan ta'limni joriy etish bo'lajak kadrlarni tayyorlashda muxim ahamiyat kasb etadi.[1]

Adabiyot sharhi

Alan Kay o'quv jarayonida kompyuter texnologiyalaridan foydalanish bo'yicha ilg'or ishlarni olib borgan. U shaxsiy kompyuterlarning talabalar o'quv jarayonida qanday ta'sir ko'rsatishi borasida ishlari bilan tanilgan.

Alan Kay "Smalltalk" dasturlash tilini ishlab chiqqan va bu til orqali talabalar uchun dasturiy muhit yaratishga imkoniyat bergan. Uning ishlari talabalarga hisoblash eksperimentlarini osonlikcha o'tkazishga imkon yaratadigan interaktiv vositalarni loyihalashga yo'naltirilgan.

Metodlar

Talabalarni o'qitish jarayonida hisoblash eksperimentlarini amalga oshirishda dasturiy vositalarning o'zni katta ahamiyatga ega. Dasturiy vositalar yordamida talabalar nazariy bilimlarni amaliyotga tatbiq qilish, murakkab matematik va texnologik masalalarni yechish, va ilmiy-tadqiqot loyihalarini bajarishda tajriba orttiradilar. Quyida bu vositalarning o'quv jarayonidagi o'zni va afzalliklarini batafsil ko'rib chiqamiz.[14]

1. Hisoblash samaradorligini oshirish

Dasturiy vositalar o'quv jarayonida hisoblash eksperimentlarini avtomatlashtirish va tezlashtirish imkonini beradi. Bu talabalar uchun katta matematik modellar va muammolarni tez va samarali yechish imkonini yaratadi. Hisoblash ishlarini dastur yordamida avtomatlashtirish quyidagi afzalliklarga ega:

Katta hajmdagi hisoblashlarni qisqa vaqt ichida bajarish.

Hisoblash jarayonini takrorlash imkoniyati.

Murakkab algoritmlarni qo'llash orqali tahlilni chuqurlashtirish.

2. Vizualizatsiya va natijalarni ko'rsatish

Dasturiy vositalar hisoblash natijalarini vizualizatsiya qilish imkonini beradi, bu orqali talabalar murakkab ma'lumotlarni osonroq tushunishlari mumkin. Grafiklar, diagrammalar, 3D modellar va interaktiv interfeyslar orqali eksperiment natijalari tushunarli va ko'rgazmali tarzda ko'rsatiladi.

Grafiklar va diagrammalar orqali ma'lumotlarni tasvirlash.

Simulyatsiyalar va modellar orqali murakkab jarayonlarni ko'rsatish.

3D tasvirlash va interaktiv interfeyslar yordamida natijalarni vizual tahlil qilish.

3. Murakkab masalalarni yechish

Hisoblash eksperimentlarini dasturiy vositalar asosida amalga oshirish murakkab matematik va ilmiy masalalarni yechishda yordam beradi. Dasturiy modellar murakkab differensial tenglamalar, statistik tahlillar va algebraik masalalarni yechish imkonini beradi.

Differensial va integral tenglamalarni yechish (MATLAB, Mathematica, Maple kabi dasturlar orqali).

Statistik tahlil va katta hajmdagi ma'lumotlarni qayta ishlash (Python, R kabi dasturlarda).

Noan'anaviy masalalar va algoritmik modellashtirish (Octave, Wolfram Mathematica).

4. Amaliy bilimlarni rivojlantirish

Dasturiy vositalardan foydalanish talabalar uchun amaliy bilim va ko'nikmalarni rivojlantirish imkonini beradi. Dasturlash, algoritmlarni tushunish va texnik masalalarni yechish ko'nikmalari zamonaviy fan va texnologiyada muhim ahamiyatga ega. O'quv jarayonida talabalar:

Dasturlash tilini o'zlashtirish (Python, MATLAB, R).

Matematik modellash va algoritmlarni amalda qo'llash.

Muammolarni yechish uchun samarali dasturiy vositalarni tanlash va qo'llash ko'nikmalarini rivojlantiradilar.

5. Masofaviy o'qitish va onlayn laboratoriyalar

Dasturiy vositalar masofaviy ta'lim va onlayn laboratoriyalar uchun ham muhim hisoblanadi. Talabalar onlayn platformalarda matematik modellar bilan ishlash, masalalarni yechish va natijalarni baholash imkoniyatiga ega bo'ladilar.

Bulutli platformalar orqali virtual laboratoriyalarda hisoblashlar.

Masofadan interaktiv mashg'ulotlar va hisoblash tajribalarini o'tkazish.

O'quv simulyatorlari orqali real vaziyatlarni modellashtirish va ularni tahlil qilish.

6. Ilmiy-tadqiqot ishlarida qo'llash

Talabalar o'z ilmiy-tadqiqot ishlarida dasturiy vositalardan foydalanib, matematik modellashtirish, ma'lumotlar tahlili, va eksperiment natijalarini tekshirish imkoniyatiga ega bo'ladilar. Bu jarayon ularga o'z tadqiqotlarini aniq va ishonchli asosda olib borish imkonini beradi.

Tajriba natijalarini tekshirish va taxminlarni baholash.

Statistik tahlil orqali natijalarni ishonchlilik darajasida tasdiqlash.

Tadqiqot natijalarini modellashtirish va vizualizatsiya qilish.

7. O'qitish samaradorligini oshirish

O'qituvchilar uchun dasturiy vositalar yordamida darslarni tashkil qilish ta'lim samaradorligini oshiradi. O'qituvchilar o'quv materiallarini interaktiv, amaliy va qiziqarli tarzda yetkazishlari mumkin:

Avtomatlashtirilgan testlar va masalalar yordamida talabalarning bilimlarini baholash.

Interaktiv o'quv muhitlari orqali talabalar bilan muloqot qilish.

O'quv loyihalarini tashkil qilish va talabalar bilimini baholashda qulaylik

Xulosa

Dasturiy vositalar talabalarni o'qitish jarayonida hisoblash eksperimentlarini tashkil etishda muhim ahamiyat kasb etadi. Ular nafaqat nazariy bilimlarni amaliyotda qo'llash, balki talabalarning ilmiy-tadqiqot va hisoblash ko'nikmalarini rivojlantirish uchun ham keng imkoniyatlar yaratadi. Zamonaviy dasturiy vositalardan foydalanish, o'quv jarayonini interaktiv va samarali tashkil etishga ko'maklashadi, bu esa talabalar uchun raqobatbardosh bilimlar manbai bo'ladi.

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ANALYSIS OF STATE EDUCATION STANDARDS FOR MATHEMATICS IN PRIMARY GRADES

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Abstract (100-120 words): *To strengthen students' skills and abilities related to the content and structure of mathematics education in elementary grades, to ensure thorough mastering of the state educational standard in mathematics for elementary grades.*

Keywords: *[state educational standard, science, curriculum, textbook, method, methodology, teaching, teaching, knowledge, skill, competence, subject, goal, task, interdisciplinarity]*

Introduction

The state educational standard of general secondary education defines the goals and objectives, main principles, components of the state educational standard, the procedure for introducing state educational standards and monitoring compliance with the requirements of state educational standards.

The development of the state educational standard is based on the following documents:

- Constitution of the Republic of Uzbekistan;
- Law of the Republic of Uzbekistan "On Education";
- Law of the Republic of Uzbekistan "On the National Personnel Training Program";
- Decision No. 5 of January 5, 1998 of the Cabinet of Ministers of the Republic of Uzbekistan "On the development and implementation of state education standards for the continuing education system";
- Resolution No. 124 of May 8, 2013 of the Cabinet of Ministers of the Republic of Uzbekistan "On approval of the state education standard for foreign languages of the continuous education system";

- Decision No. 140 of March 15, 2023 of the Cabinet of Ministers of the Republic of Uzbekistan "On approval of the regulation on general secondary education";
- UzDSt 1.0-98. "State system of standardization of the Republic of Uzbekistan. Basic rules";
- UzDSt 1.1-92. "State system of standardization of the Republic of Uzbekistan. Procedures for development, coordination, approval and registration of standards of the Republic of Uzbekistan";
- Own DSt 1.5-93. "Procedure for reviewing, checking, amending and revoking normative documents on standardization";
- Own DSt 1157:2008. Document unification system. System of organizational documents. Requirements for formalization of documents.
- Own DSt 1.8:2009. Basic rules. Recommendations.

Fulfillment of the state educational standard is mandatory for all general secondary educational institutions operating in the territory of the Republic of Uzbekistan. The word "standard" is English and means "copy", "size", "standard".

Concepts of standard, standards of standardization, DTS defines the forms, tools, methods of educational content and the procedure for evaluating their quality. The condition of ensuring a stable level of education in various educational institutions (state and non-state) operating in the territory of the country is implemented by means of the standard, which is the core of the educational content. DTS, by its very nature, serves as a basis for the creation of educational programs, textbooks, training manuals, regulations, curriculum and other regulatory documents.

Fulfillment of DTS and its requirements is mandatory for all educational institutions operating in the territory of the Republic of Uzbekistan, regardless of the form of ownership and departmental subordination. As a component of DTS, a basic curriculum for general secondary (vocational and higher) educational institutions will be developed. The basic curriculum is considered to be a state document that is the basis for the regulation of educational fields and the basis for ensuring the financial support of educational institutions. The basic curriculum

determines the minimum amount of study hours allocated to deliver the content of education to the learner.

Literature Review.

What are the goals and objectives of state education standards?

The introduction of state educational standards implies the following goals:

- to ensure the high quality of education and the deep economic and social reforms implemented in the country, training of competitive personnel that meets the requirements of building a developed democratic state;
- regulating the content of personnel training based on the prospects of social and economic development of the country, the needs of society, modern achievements of science, technology and technology;
- democratization, humanization and socialization of education, increasing the level of legal and economic knowledge of students, as well as the efficiency of the educational process;
- protection of the interests of the individual, society and the state in the field of providing high-quality educational services, education and personnel training;
- determining the criteria and procedure for evaluating the quality of personnel training and educational activities;
- ensure the consistency and continuity of the educational process and personnel training;
- ensuring competitiveness in the market of labor and educational services.

Tasks of state educational standards:

- determining the acceptable requirements for the quality of education and personnel training, the types of educational services provided;
- to create a normative basis that determines the relevant requirements for education and its final results, the procedure for periodic assessment of the level of knowledge and professional skills of learners, as well as control over the quality of educational activities;
- introduction of effective forms and methods of spiritual and moral education of students based on the rich intellectual heritage of the nation and universal human values;
- to agree on their content and education and upbringing in all types of education, to ensure their interdependence, consistency in the continuous education system and personnel training;

- setting standards and requirements for the education and training process, provision of pedagogical and information technologies, control of the level of education, qualifications of students and their graduates in educational institutions;
- introduction of an impartial system of assessment of the quality of education and personnel training, attestation and accreditation of educational institutions;
- ensuring effective integration of education, science and production for purposeful and high-quality training of personnel;
- to ensure compliance with international requirements regarding the quality of education and training of personnel with the requirements of national standards.

The purpose of the state education standard is to organize the general secondary education system based on the socio-economic reforms implemented in the country, best practices of developed foreign countries, and science and modern information and communication technologies, morally sound and is to educate an intellectually developed person.

Methods.

The tasks of the state educational standard are as follows:

- setting requirements for the content and quality of general secondary education;
- introduction of effective forms and methods of educating students based on national, universal and spiritual values;
- introduction of pedagogical and modern information and communication technologies into the educational process, setting requirements for the qualifications of students and graduates of general secondary educational institutions;
- ensuring effective integration of education, science and production for purposeful and high-quality training of personnel;
- improvement of the procedure for systematic assessment of education and its final results, the level of students' achievement of qualification requirements, as well as the legal basis for quality control of educational activities;
- to ensure compliance of the requirements of the state educational standards with the international requirements for the quality of education and personnel training.

Results and Discussions.

The main principles of the state educational standard of general secondary education

The state education standard is based on the following basic principles:

- the priority of the student's personality, his aspirations, abilities and interests;
- humanitarian content of general secondary education;
- compliance of the state education standard with the requirements of the state and society in the field of education, as well as individual needs;
- continuity of general secondary education with other types and stages of education and coherence of educational content;
- unity and integrity of general secondary education content in all regions of the republic;
- that the content, form, means and methods of general secondary education are based on innovative technologies;
- provision of support for students to learn subjects and to continue their education and development of general competences related to subjects;
- use the experience of setting standards in the field of education of developed foreign countries, taking into account national characteristics.

Conclusion.

The set plan is forced to be implemented and causes a chain of actions in the mind that leads to the successful achievement of the goal.

Today, the educational portfolio, which is a widely used control tool in the experience of foreign countries, is of practical importance due to the following possibilities:

- assessment of multi-functionality and personal success;
- monitoring of individual achievements;
- organizing the exam;
- impartial determination of educational results;
- being able to clearly see educational achievements and additional results;
- to be able to see the student's existing opportunities and abilities, his strengths and weaknesses, to adequately assess his personal, professional and creative potential.

The formation of portfolios by students is effective in the following cases:

1. Getting a promising job (leadership and colleagues will have the opportunity to get to know the young specialist).

2. In carrying out scientific research works (ensures the possibility of patenting research results).
3. Participating in Science Olympiads (it is possible to evaluate and challenge the student's capabilities at different stages of the Olympiad).
4. When applying for a prestigious and presidential scholarship (the selection committee will be fully aware of the student's capabilities).
5. In the implementation of personal goals (engaging in an additional type of activity creates an opportunity for partners to get to know the student's personality).

An important condition for the economic, political and spiritual development of our country and its place among the developed countries of the world by applying metacognitive methods in the educational system, introducing the improved model of students' knowledge using electronic portfolios into practice consists of.

In conclusion, based on the given data, the results of the analysis showed that the first criterion for the development of intellectual abilities of students is the thinking motive, the second criterion is the formation of cognitive abilities, the third criterion is the formation of metacognitive skills, and as an important practical factor for the development of the intellectual abilities of the student portfolio can be seen.

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PEDAGOGIKA FANINI RIVOJLANTRISHDA ZAMONAVIY PEDAGOGIK TEXNOLOGIYALARNING O'RNI

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Annotatsiya: Ushbu maqolada pedagogika fanini rivojlantrishda zamonaviy pedagogik texnologiyalarning o'rnini yoritilgan. Shuningdek, pedagogik texnologiya asosida mashg'ulot o'tish, dars jarayonida zamonaviy texnik vositalar, kompyuterlar, videokompyuterli multimediya komplekslarini qo'llash orqali o'tish kerakligi asoslangan. Pedagogik texnologiya tushunchasi ilmiy maqolalar, davriy nashrlar, anjumanlardagi mavzu va hisobotlarda ham o'z aksini topmoqda va bu fan bilan bilan shug'ullanadigan olimlarning ilmiy ishlari ham yoritilgan. Qolaversa, pedagogika fanini rivojlantrishda zamonaviy pedagogik texnologiyalarning o'rnini oshirish bo'yicha xulosa va takliflar ishlab chiqilgan.

Keywords: [pedagogika fani, zamonaviy pedagogik texnologiyalar, ta'lim tamoyillari, metodik ishlanmalar.]

KIRISH.

Ma'lumki, har qanday texnologiya ta'limning yangi mazmunini shakllantiruvchi ta'lim tamoyillariga asoslanadi va ta'lim oluvchi shaxsini tarbiyalash, unda mehnat va muayyan yo'nalishlarda kasbiy ko'nikmalarni hosil qilishga yo'naltiriladi. Ta'lim jarayonining faol sub'ektlari o'qituvchi va o'quvchilar bo'lib, ularning hamkorlikdagi faoliyatlari muayyan mavzu (yoki fanlar asoslari) bo'yicha kam kuch va vaqt sarflangan holda nazariy va amaliy bilimlarni chuqur o'zlashtirish imkonini yaratadi. O'qituvchining faol, samarali faoliyat ko'rsatishiga yo'naltirilgan ta'lim jarayonining metodik ishlanmasidan farqli ravishda, ta'lim jarayonini faollashtirish va jadallashtirishga yo'naltirilgan pedagogik texnologiyalari ta'lim oluvchilarga qaratiladi, shuningdek, ularning shaxsiy va o'qituvchi bilan birgalikdagi faoliyatini hisobga olgan holda o'quv

materiali o'zlashtirishga sharoit yaratish bilan bir qatorda, ta'lim tarbiyasi butun mashg'ulot davomida o'quvchilarning faolligi va qiziquvchanligini muntazam ravishda rivojlantirib borish maqsadini ko'zda tutadi, o'quv omillarini yaratishga asoslangan pedagogik texnologiya talablarini o'quv yoki ishlab chiqarish faoliyatiga tezkor jalb qilish imkonini beradi. Aks holda, zaif, yetarli darajada tushunarli bo'lmagan yoki aniq natijani ko'zlanmagan topshiriqlar mashg'ulotning samarasiz yakunlanishiga olib kelishi mumkin.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

O'zbekiston Respublikasi kadrlar tayyorlash milliy dasturining "Uzluksiz ta'lim tizimi va turlari" bo'limida ikki bosqichli oliy ta'limni tashkil etish va rivojlantirish uchun amalga oshirish zarur bo'lgan tadbirlar qatorida "Yangi pedagogik va axborot texnologiyadan foydalangan holda talabalarni o'qitishni jadallashtirish; o'qitishni mustaqil bilim olishni individuallashtirish hamda distantsion ta'lim tizimi texnologiyasi va vosilalarini ishlab chiqish va o'zlashtirish" haqida so'z yuritilgan. Ushbu tadbirlarni amalga oshirish o'qitishni takomillashtirish, ya'ni o'quv jarayoniga pedagogik texnologiyalami keng tatbiq qilish, kompyuterli avtomatlashtirilgan o'qitish tizimini qo'llash, ta'limda yangi texnikaviy va didaktik vositalar hamda multimediya imkoniyatlaridan foydalanish, masofadan o'qitish ta'limini joriy qilish kabi o'qitishning zamonaviy texnologiyalarini qo'llash orqali bajariladi. Rivojlangan mamlakatlarda yangi pedagogik texnologiya asta-sekinlik bilan shakllanib, O'zbekiston Respublikasiga ham kirib kela boshlagan. Yangi pedagogik texnologiya dars jarayonida talabalarni mustaqil fikrlash, erkin faoliyat yuritishga da'vat etadi. So'nggi yillarda Respublikamizning taniqli pedagog olim va o'qituvchilari tomonidan o'quv jarayoniga pedagogik texnologiyalami joriy etish bo'yicha samarali izlanishlar olib borilmoqda. Pedagogik texnologiya tushunchasi ilmiy maqolalar, davriy nashrlar, anjumanlardagi mavzu va hisobotlarda ham o'z aksini topmoqda. Jumladan, respublikamiz olimlari R.X.Jo'rayev, A.P.Parpiev, N.X.Saydahmedov, U.N.Nishonaliev, L.Farberman, L.V.Golish, U.X.Tolipovlar hamda Rossiya pedagog olimlaridan V.P. Bezpalko, M.V.Klarin, V.M.Monaxov, P.I.Pidkasistiylar, shuningdek, qozog'istonlik olimlaridan M.J.Aristanov, J.S.Xaydarov va boshqalar o'z ilmiy tadqiqotlarida "pedagogik texnologiya" tushunchasining mohiyatini va ahamiyatini ochib berishga harakat qilganlar. Hozirgi kunda pedagogika adabiyotlari, ta'lim muammolariga oid ma'ruzalar va rasmiy hujjatlarda "yangi pedagogik texnologiya", "ilg'or pedagogik texnologiya", "zamonaviy pedagogik texnologiya", "o'qitish texnologiyasi", "ta'lim texnologiyasi" kabi iboralar keng qo'llanmoqda. Ammo ushbu tushunchalar hali

ham bir qolipga tushirilmagan va entsiklopidiyalarda izohlanganicha yo‘q. Bu iboralar mazmunining yagona talqini ishlab chiqilmagan va shuning uchun ularning bir-biridan farqlanuvchi ko‘pgina ta’riflari mavjud. V.Guzevning ta’kidlashicha an’anaviy uslubda ta’lim maqsadlari dastur talablariga muvofiq holda noaniq, ya’ni ta’lim oluvchilarning “o‘zlashtirish” tushunchasi qobig‘iga o‘ralgan noaniq tasavvur bilan tavsiflanadi. Ko‘proq yutuqlarga erishgan o‘qituvchilarning ish tajribalarini umumlashtirish asosida ta’lim jarayonlari tashkil etiladi. Har bir aniq vaziyat uchun mana shu o‘qituvchilarning pedagogik faoliyati namuna sifatida ko‘rsatiladi. Ammo bir qator olimlar ta’limning alohida uslubiyotlari davri o‘tganligi va har qanday ilg‘or pedagoglar tajribalarini umumlashtirish tizimli va maqsadga yo‘naltirilgan, samarali ta’limni qurish imkonini bermasligini ta’kidlamoqdalar. Hozirgi kunda ko‘pgina mutavassislar an’anaviy pedagogikani tanqid qilgan holda o‘qitishda haligacha umumiy tushunchalar, qoida va qonuniyatlar o‘rganiladigan yondashuv ustivorligini ta’kidlamoqdalar. O‘quvchilarning real dunyo ob‘ektlari bilan ishlashi hajm va mazmun jihatidan juda kam.

MUHOKAMA VA NATIJALAR

Interfaol pedagogik texnologiyalar asosida tashkil etilgan darslarning afzalliklari shundan iboratki, bunday darslar tizimi tafakkurni charxlaydigan, Vatanga cheksiz muhabbat, sadoqatni, fuqarolik axloqi va demokratik madaniyatni shakllantiruvchi fan asosi bo‘lib xizmat qiladi. Fanlarni o‘qitishda “Guruhlar bilan ishlash”, “Munozara”, “Muammoli o‘qitish”, “Aqliy hujum” kabi metodlar, shuningdek jadvallar bilan ishlash, mustaqil fikrni ifodalaydigan yozma ishlar, insholar yozish o‘quvchilar faolligini oshiradi.

Bu metodlar asosida olib borilgan ana shunday darslar vaqt tejamkorligi bilan birga, yangi bilimlarni o‘quvchiga yetkazib beradi, shuning bilan birga bolani o‘ylantiradigan, chuqur mushohadaga undaydigan, butun diqqat e’tiborini o‘ziga jalb qila oladigan, muammoli vaziyatlar, bahs-tortishuvlarda to‘g‘ri xulosalar bilan vaziyatdan chiroyli chiqib keta oladigan va olgan bilimlarini boshqa mavzular bilan bog‘lab, umumlashtiradigan sharoitga ega bo‘ladi.

Hozirgi davr ta’lim taraqqiyoti yangi yo‘nalish – innovatsion pedagogikani maydonga olib chiqdi. “Innovatsion pedagogika” termini va unga xos bo‘lgan tadqiqotlar G‘arbiy Yevropa va AQShda 60-yillarda paydo bo‘ldi. Yangilik kiritishning sotsial-psixologik aspekti amerikalik innovatik E.Rodjers tomonidan ishlab chiqilgan. U yangilik kiritish jarayoni qatnashchilarining toifa(tip)lari tasnifini, uning yangilikka bo‘lgan munosabatini, uni idrok qilishga shayligini tadqiq etadi.

Pedagogik texnologiya – ta’lim va tarbiya jarayonida zamonaviy pedagogik texnologiyalarni qo‘lash, texnologik yondashuv asosida ta’lim va tarbiya jarayonining samaradorligini oshirish muammolarini o‘rganadi. Texnologiya so‘zining lug‘aviy ma‘nosiga to‘xtalib o‘tadigan bo‘lsak, ushbu so‘z yunonchadan olingan bo‘lib, “tehnos” – mahorat, san‘at, “logos” – ta’limot, fan ma‘nolarini anglatadi. Bundan kelib chiqadiki, texnologiya so‘zi boshqa terminlarga qo‘shilib, ana shu sohani rivojlantirish, mahoratini oshirish vazifalarini bajaradi. Umumiy qilib aytganda, texnologiya sifat jihatdan yangi masalalarni yechish uchun ta’lim evolutsiyasi bosqichini tayyorlagan obyektiv jarayondir. Yangi texnologiyalar katta ta’lim imkoniyatlarini ochdi. Ro‘y berayotgan sifat o‘zgarishlar shuni ko‘rsatadiki, odat bo‘lgan tushuntirishda – o‘rgatish jarayonlari o‘qituvchilarning kasbiy imkoniyatlari chegarasidan tashqari chiqib keta boshladi. Vujudga kelgan yangi texnik, axborot, bosma, eshitish va ko‘rgazma vositalari o‘ziga xos tarzda yangi metodikalar bilan ta’lim jarayoniga ko‘pgina yangiliklar kiritib, uning ajratilmas qismi bo‘lib qolmoqda. Biroq, pedagogik texnologik jarayonning o‘ziga xosligi, uning an’anaviy shakllaridan ustuvorligi va hozirgi zamon ta’limi muammolari real yechish usullari hali to‘la o‘rganilmagan. Bu haqda chet ellik va o‘zbek avtorlari ko‘p yozmoqdalar. Lekin barchalari pedagogik texnologiyalar kelajakda ustuvor o‘ringa ega bo‘lishiga ishonadilar. Hozirda ta’lim texnologiyasi yordamchi vosita bo‘lib qolmay balki, o‘quv jarayonining rivojlanishida katta rol o‘ynab, uning tashkiliy shakllari, metodlari, mazmunini o‘zgartiradigan yangi sistema deb tushunilmoqda. Bu esa, o‘z navbatida, o‘qituvchi va o‘quvchining pedagogik tafakkuriga o‘z ta’sirini ko‘rsatmoqda. Texnologiyani bunday tavsif qilish ta’lim jarayonidagi barcha tuzuvchilar orasidagi uzviy bog‘lanishning muhimligini, pedagog va o‘quvchining o‘zaro hamkorligini ko‘rsatadi. O‘quvchi passiv ta’lim obyektidan faol shaxs ta’lim va tarbiya subyektiga aylanadi va aktiv subyekt sifatida o‘qituvchi bilan bu jarayonda qatnashadi, mustaqil bilim olishga intiladi.

Innovatsion usullarda dars o‘tish jarayonini, ya’ni zamonaviy pedagogik texnologiyalarni boshlang‘ich ta’lim davridan boshlab tashkillashtirish ta’lim tizimida yuqori samara beradi. Bu degani, boshlang‘ich ta’lim umumiy o‘rta ta’limning poydevori hisoblanadi. Ana shu poydevorni mustahkam tarzda bunyod etish kelgusi davrlardagi ta’lim jarayonlarining o‘tilishida ham qulayli yaratgan bo‘ladi. O‘z-o‘zidan kelib chiqadiki, boshlang‘ich ta’limdan boshlab tashkil etilgan pedagogik texnologiyalar ta’limning keyingi davrlarida tshkil etilishida birinchi bosqich vazifasini o‘taydi.

Talabalarning bilishga bo‘lgan qiziqishi shakllanishining muhim shartlaridan biri hissiy vaziyat, bilishga bo‘lgan ehtiyoj va ongli fikrlashni rivojlantirishni

yaratish bo'lishi ham mumkin. Talabalarning bilish faoliyati tuzilmasiga faollik kiradi, ya'ni bu shunday ish faoliyatiki, unda bilish faoliyatini jonlantiradigan intellektual, irodaviy, hissiy jarayonlar birgalikda namoyon bo'ladi. Jonli bilish faoliyati uchun, bilimga bo'lgan har tomonlama, chuqur qiziqish, muayyan kuch sarf qilinishi, diqqat, belgilangan maqsadga erishish uchun zarur bo'lgan aqliy va jismoniy kuchlar qaratilgan bo'lishi lozim. Bilish faolligi individual bo'ladi, u shaxsning tug'ma qobiliyati emas, balki uning xatti-harakatlari jarayonida shakllanadi. Talabalarning jonli bilish faoliyati uchun quyidagilar xosdir:

- bilimga va o'quv maqsadlariga bo'lgan chuqur, har tomonlama qiziqish;
- aqliy, jismoniy va intellektual kuchlarni faol namoyon qilish;
- diqqat, xotira, iroda va boshqa ruhiy sifatlarni to'plash.

Bilish faolligi jarayonida quyidagi 4 sath ajratiladi:

- reproduktiv faollik. Bunda – tayyor bilimlarni egallashga tayyorlik, qizg'in qayta ishlash faoliyati kabilarni amal qiladi;
- aplikativ faollik – unga qizg'in tanlov-yaratish faoliyatiga tayyorlik xarakterlidir;
- izohlashdagi faollik – ma'no-mazmunni qizg'in izohlash, tushuntirish va ochib berishga tayyorlik;
- produktiv (samarali) faollik – unga yangilikni qizg'in ijod qilishga tayyorlik xarakterlidir.

Bilish faolligi rivojlanishi bir necha bosqichlarni o'z ichiga oladi:

- mustaqil xatti-harakatlarga intilishda namoyon bo'ladigan amaliy faoliyatdagi faollik;
- o'rganilayotgan hodisalarning mohiyati va tamoyillarini qo'lga kiritishdagi intilish;
- ijodiy faollik oliy bosqich bo'lib, u sabab-oqibat bog'lanishidan, ijodiy fikrlarning haqqoniyligiga, uning hayotiy va bilish qimmatiga ishonch hosil qilishdan tarkib topadi.

Pedagogika va psixologiyaga oid adabiyotlar tahlili shunday xulosa qilishga izn beradi: o'qitishda bilish faoliyatini jonlantirish deganda tom ma'noda fikrlash ishining faolligi tushuniladi. Fikrlash faolligi bilish faoliyatida maqsadga muvofiq

analiz va sintezda, o'quv materiallarini konkretlashtirish va bir tizimga keltirishda, induksiya va deduksiyani qo'llashda, bilimlar tizimini egallashda, dunyoqarash hamda tasavvurlar va tushunchalarni ishlab chiqishda namoyon bo'ladi. Talabalarning ijodiy faolligi rivojlanishi shaxsning o'iganilayotgan narsa va hodisalar mohiyatiga chuqur kirib borishga intilish va bilish faoliyatiga yangilik va ijodiylik unsurlarini olib kira olishi qobiliyati bilan xarakterlanadi. Bu tushunchalar bir-birini to'ldiradi. Chunki mustaqil harakatlarning o'zidayoq shaxsning faolligi namoyon bo'ladi, aksincha, faollik ko'pincha mustaqil harakatlarni taqozo qiladi. Bilish mustaqilligi quyidagi belgilaiga ega:

- mustaqil fikrlay olish va unga intilish;
- yangi vaziyatlarda mo'ljalni o'z bilishsa yoki yangi vazifalarni yechishga o'z yondashuvini topa bilish qobiliyati;
- o'zlashtirilayotgan bilimlarni nafaqat tushunishni istash, balki uni qo'lga kiritish usullarini topish;
- boshqa ishlarni baholashda tanqidiy yondashuv;

XULOSA

B.P.Yesipov mustaqil ishlarni bilimlarni izlab topish, malaka va ko'nikmalarni mustahkamlash, bilimlardan yangi sharoitlarda foydalana olish hamda bilimlarni amaliy qo'llash kabi didaktik vazifalar bilan bog'laydi. Xulosa qilib aytganda o'quv jarayonida pedagogik texnologiyalardan foydalanish ta'lim samaradorligini oshirishga xizmat qiladi. Ushbu maqsadni ro'yobga chiqarish quyidagi vazifalarni hal etishni nazarda tutadi:

1) O'zbekiston Respublikasining – “Ta'lim to'g'risida”gi qonuniga muvofiq ta'lim tizimini isloh qilish, davlat va nodavlat ta'lim muassasalari hamda kadrlar tayyorlash sohasida raqobat muhitini shakllantirish negizida ta'lim tizimini yagona o'quv ishlab chiqarish majmui sifatida izchil rivojlantirishni ta'minlash;

2) Ta'lim va kadrlar tayyorlash tizimini jamiyatda amalga oshirilayotgan yangilanish, rivojlangan, demokratik-huquqiy davlat qurilishi jarayonlariga moslash;

3) kadrlar tayyorlash tizimi muassasalarini yuqori malakali mutaxassislar bilan ta'minlash, pedagogik faoliyatning tashkiliy va ijtimoiy maqomini ko'tarish;

4) Kadrlar tayyorlash tizimini hozirgi talablar doirasida qayta qurish;

5) Ta'lim oluvchilarni ma'naviy-ahloqiy tarbiyalashning samarali uslublarini ishlab chiqish va joriy etish;

- 6) Tizimni attestatsiya va akkreditatsiya qilishning yagona metodikasini joriy qilish;
- 7) Normativ va moddiy – texnika axborot bazasini yaratish;
- 8) Ta’lim, fan va ishlab chiqarishning integratsiyasini ta’minlash;
- 9) Tizimga byudjetdan tashqari investitsiyalarni jalb qilish;
- 10) Kadrlar tayyorlash sohasida o‘zaro manfaatli xalqaro hamkorlikni rivojlantirish.

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PEDAGOGIKADA TARBIYA TIZIMI TAKOMILLASHTIRISH.

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Annotasiya: *Ushbu maqolada pedagogikada tarbiya tizimi takomillashtirish va ta'limda didaktik tizimi ta'lim maqsadlari, o'qish mazmuni, uni tashkil etishning metod va shakllari yoritilgan.*

Tayanch so'zlar: *Tarbiya tizimi, didaktik tizim, insonparvarlik, individuallashtirish, tarbiyaviy yondashuvlar.*

KIRISH

Bugungi kunda barkamol inson tarbiyasi, ularni pedagogik-psixologik bilimlar bilan qurollantirish eng dolzarb masalasi hisoblanadi. Tarbiya jarayonining asosi o'qitish hisoblanadi. Tarbiya jarayoni didaktik vositalar bilan ko'rinaboshlaydi. Tarbiya tizimining tushunchasi didaktika ichiga qo'shib amalga oshiriladi. Tarbiya jarayoni o'ziga hosligini saqlab qolish uchun "tarbiya?, tarbiya ... tarbiya!" ... Unda tarbiya tizimi didaktikadan iborat bo'lmaydi, balki bir tomondan pedagogik-psixologik, boshqa tomondan esa – ijtimoiy-pedagogik tizimdan iborat bo'ladi. Bunda tarbiya tizimi o'quvchilarga faqat didaktik tizim sifatida emas, balki ijtimoiy omil sifatida ham ularni bizni o'rab turgan borliqqa jalb etish orqali ham ta'sir ko'rsatadi. Har bir ta'lim muassasalarida tashkil topadigan ma'lum psixologik muhit tarbiyaga albatta, ota-onalar, o'qituvchilar va o'quvchilar o'rtasida yuzaga keladigan munosabatlar orqali ta'sir ko'rsatadi. Oliy ta'lim muassasalarida ta'limning didaktik tizimi ta'lim maqsadlari, o'qish mazmuni, uni tashkil etishning metod va shakllari orqali ifodalanadi. Ma'lumki pedagogikada "Didaktik tizim" tushunchasi ancha qadimdan shakllangan. Tarbiyaviy maqsadlarni amalga oshirishda, o'rganilayotgan material mazmuni, uni etkazish shakli va metodlari, hamda shu kabilarni belgilash orqali o'qitish jarayonida foydalaniladi. Yana bir tarafdin tarbiyaning ikkinchi tushunchasi mantiqida didaktik tizim – o'zi tarbiyaviy tizimining – didaktik tizimida ishtirok etadi, ya'ni uning tizimi hisoblanadi. Shunday qilib, ijtimoiylashtirish insonning maqsadga muvofiq jarayonlar maktabgacha, maktab, maxsus pofessoinal ta'limlarida hamda tasodifiy omillar ta'siri ostida amalga oshiriladi. Bu ta'sir ko'rsatish tarbiya tizimi insonparvarlikni obro' e'tibor, nufuzi vositalar bilan amalga oshirilishi shart emas. Unda o'qituvchi va bolalar o'rtasida, insonparvarlik munosabatlari mavjud bo'lishi, qadriyatlar targ'ib qilinishi, guruhli va individual ijodkorlik elementlari

tatbiq qilinishi mumkin. Bundan tashqari, ta'sir ko'rsatish ushbu tarbiya tizimi o'zi tarbiya jarayoniga demokratik qadriyatlar va qoidalar kiritishi kerak. Tarbiyaning asosan to'rtta usuli mavjud: O'rnak namuna;

- Pand nasihat;
- Rag'bat;
- jazo.

Yuqorida takidlaganimizdek tarbiyaning usullaridan biri – bu jazo bo'lib, tarbiyaviy tizim qandaydir jazo va majburlashlarsiz, mavjud bo'lishi mumkin emas.

ADABIYOTLAR TAXLILI VA METODOLOGIYA

O'zbekiston Respublikasini yanada rivojlantirish bo'yicha 2017-2021 yillarga mo'ljallangan Harakatlar strategiyasining amalga oshirilishi davlat va jamiyat qurilishini izchil takomillashtirishni ta'minlash, ilg'or innovatsion va ilmfan yutuqlariga asoslangan texnologiyalardan foydalangan holda zamonaviy ishlab chiqarishni yo'lga qo'yishga yo'naltirilgan ishlarga yangicha yo'l ochib berdi. Bu muhim maqsadlar yuqori malakali mutaxassislar, pedagog va ilmiy kadrlar tayyorlash tizimini ilg'or xorij tajribasini o'rganish va uning eng yaxshi yutuqlarini davlat va jamoat tuzilmalari, iqtisodiyot tarmoqlarida tatbiq etish asosida jiddiy qayta ko'rib chiqish va takomillashtirish zaruratini taqozo etmoqda. Mashg'ulot jarayonida talabalarni kichik guruhlariga birlashtirish hamkorlikdagi faoliyatda o'yin rollarini yaratish usullari; guruhni muhokamada prezentatsiyaga chiqish tartibi va boshqalar- bularning barchasi pedagoglarning aniq uslublariga misollar. Lekin ulardan hech biri, qandaydir aniq tarbiyaviy masala bilan to'g'ridan-to'g'ri bog'liq emas, shuning uchun mana shu uslublarni turli xil texnologiyalarga kiritish mumkin. Jamoaviy yoki guruhli tahlilni tashkil qilish usuli sifatida, muloqot mashqlar o'tkazish uslubi sifatida ham qo'llash mumkin. SHunga mos ravishda ishlab chiqilayotgan pedagogik yordam texnologiyalari, ilgari ma'lum bo'lgan uslublar yo'nalishidan iborat bo'lishi kuzatiladi. Pedagogik yordam texnologiyasi – bu o'sib borayotgan o'smirni boshqalardan farqli ekanini anglab etishga yordam beruvchi, o'zining bo'shligi va o'z kuchini – jismoniy, intellektual, ma'naviy, ijodiy vositalardan foydalanishi tizimidir. Bu ta'lim olishda shaxsiy hayot yo'li va hayot mazmunini tanlash uchun zarurdir. Texnologiyani amalga oshirish o'quvchining savolidan boshlanadi: “men kim bo'laman!”, “qanday bo'lishim kerak?”. O'qituvchi bilan birgalikda mana shu savollarni muhokama qilish, yana boshqa bir mustaqil savolni ham keltirib chiqaradi: “Qanday yashash kerak?” ... Bildirilgan maslahatlar yordamida o'quvchiga hos bo'lgan shaxsiy hayot tarzi, asta-sekin tuziladi, intellektual, emotsional, jismoniy yuklamalar qulay rejimi

tanlanadi. O'zini boshqarish bo'yruq bo'yicha yuzaga kelmaydi, balki uspirinlar qiziqishlari hamda fuqaro huquqlari ham o'z manfaatlarini o'zaro himoya qilishlari ehtiyojlaridan kelib chiqadi. Ushbu o'zini boshqarish talim muassasasi doirasida talabalar qiziqishlarini birlashtiruvchi bo'lganida va maktabning o'zi fuqarolik jamiyati sifatida qurilganda paydo bo'ladi. O'zini boshqarishda qoidalar ishlab chiqarish majburiy element hisoblanadi. Talabalarning o'zlari yaratadigan qoidalar, qonunlar, huquq qoidalarining muhim ahamiyatga egaligi pedagogikada ancha avval ma'lum.

NATIJALAR

Pedagogning kasbiy pedagogik madaniyat – uning pedagogik kasbga ega bo'lgan, uning umumiy madaniyatini loyihalashtiradigan o'qituvchi shaxsining ajralmas sifati hisoblanadi. Bu pedagogning yuqori professionalligi va ichki xususiyatlarining sintezi, o'qitish usullarining mohirligi va madaniy va ijodiy qobiliyatlarning mavjudligida namoyon bo'ladi. Pedagogning kasbiy pedagogik madaniyat – insoniyat tomonidan to'plangan tajribani ijodiy o'zlashtirish va o'zgartirishning o'lchovidir. Pedagogik madaniyatga egalik deganda, pedagogik tafakkur va ongi yaxshi rivojlangan, ijodiy salohiyatga ega bo'lish tushuniladi. Tarbiyadan boshqa yondashish insonparvarlik tarbiyaviy tizimini yaratish bilan bog'liq. Bu yondashish birinchi navbatda, individuallashtirish jarayoni bilan mos keladi. Yana bir bor eslatib o'tamiz, individuallashtirish – bizning tushunishimizcha – bu o'quvchi yoshlarda mavjud yoki o'zining individual tajribasida egallagan yagona, alohida va o'ziga hosligini ta'minlab turish va rivojlantirish bo'yicha kattalarning hamda bolaning o'ziga tegishli bo'lgan faoliyatlari. Shaxsni individuallashtirish uning “o'zligini” rivojlantirish, shunday qilib, keng ma'noda insonparvarlik tarbiyaviy tizimini tashkil etadi. Tarbiyada bunday yondashishning maqsadi, bolalarga, ularning “sub'ektiv mavjudliklarini” tashkil etishda yordam ko'rsatish hisoblanadi. Buning uchun ushbu tarbiyaviy tizimda, insonga o'zini anglash va o'zini amalga oshirishda yordam beruvchi maxsus vositalar ishlab chiqiladi. Insonparvarlik tarbiyaviy tizimining sub'ekti endi faqat pedagog emas, balki bolalarning o'zlari ham hisoblanadi. Bunda o'qituvchilar ham, talabalar ham oliy talim muassasasi oldida turgan maqsadlarini birgalikda aniqlashtiradilar, ularni amaliy vazifalar darajasiga ko'taradilar va birga amalga oshiradilar. Insonparvarlik tarbiyaviy tizimi samaraliligini muhim sharti, talabalar va kattalarni umumiy jamoaga birlashtirish hisoblanadi. Bolalar va kattalarning o'zaro munosabatlari, ma'lum munosabatlarni yuzaga keltiradi, ular birinchi navbatda tizimning tarbiyaviy imkoniyatlarini belgilaydi.

MUHOKAMA

Bilamizki o'ly ta'lim muassasining tarbiyaviy vazifasi talabalarda, o'zini shu dunyoda anglab etish, jamiyatda o'z o'rnini topishi, dunyoga, madaniyatga, atrofmuhitga, qadriyatlarga munosabatni shakllantirishdan iborat. Afsuski bu vazifani faqat ta'lim muassasida dars jarayonida amalga oshirib bo'lmaydi: Buning uchun o'quvchini individual manfaatlarini qondirish bilan bog'liq, ijodiy faoliyati, mehnati, dam olish doirasidagi o'yin, qiziqarli mashg'ulotlar bilan ham olib borishni taqazo qiladi. Demak bularni amalga oshirishda, ta'lim jarayonida tarbiya tizimi innovatsiyalarini o'rganish imkoniyati vujudga keladi. Tarbiya tizimi innovatsiyalarini yaratish va rivojlantirish jarayonida, oldiniga ayrim masalalarni hal etish kerak. Bularga bolalarda dunyoning yaxlit va ilmiy asoslangan ko'rinishini shakllantirish, o'z-o'zini anglashni, vatan tuyg'usinitarbiyalash, yurt taqdiri uchun javobgarlikni shakllantirish, umuminsoniy qadriyatlarga jalb etish, ular orasida mana shu qadriyatlarga mos bo'lgan xulqni shakllantirish, o'sib kelayotgan kelajak avlodda, ijodkorlikni, yordam ko'rsatishni shakllantirish kabi masalalarni kiritish mumkin. Sanasak ro'yxatini yana davom ettirish mumkin. Lekin har qanday holatda ham, mana shu vazifalarning o'zi yuqorida sanab o'tilgan tarbiyalash vazifalarining alohidaligini ko'rsatadi. Bunda tarbiya – bu o'ziga hos mazmunga ega bo'lgan bola shaxsiga ijtimoiy belgilangan va maqsadga muvofiq ta'sir ko'rsatishga asoslanadi. Bunday tarbiya ma'lum shakllarda yakka turda, jamoada, guruxlarda ma'lum metodlar asosida amalga oshiriladi. Bu yondashish biz ilgari keltirib chiqargan ijtimoiylashtirish kategoriyasi bilan to'g'ridan-to'g'ri bog'liq, bunda biz tarixiy ishlab chiqilgan ijtimoiy qoidalarni, qadriyatlar, munosabatlar, ma'naviy va moddiy madaniyat bilan munosabat usullarini, inson tomonidan o'zlashtirilishi jarayonini tushunamiz. Insonparvarlik tarbiyaviy tizimi aniq tizim hisoblanadi. Tarbiyaviy tizimlar ikki turini ya'ni ta'lim tizimi va insonparvarlik tarbiya tizimi, ularning predmeti mazmunida ham farq qilishini ko'rib chiqamiz. Birinchisi, dunyoning ijtimoiy ko'rinishini o'rganadi. Ikkinchi tizim, o'zio'zini o'rganish usulini o'rganadi. Ma'lum ijtimoiy qoidalarni, qadriyatlarni, munosabatlarni etkazib ta'sir ko'rsatish tarbiya tizimi, bolalarda o'zini anglashga qobiliyatni rivojlantirish masalasi – bu uning predmeti hisoblanmaydi. Insonparvarlik tarbiyaviy tizimi – bu boshqa gap. Inson tanlab olish sub'ekti sifatida ishtirok etar ekan, u bu tanlovni o'ziga nisbatan amalga oshirishi ko'zda tutiladi, demak o'zini anglash jarayonisiz, bu tizimni amalga oshirish mumkin emas. Shuning uchun turli insonparvarlik tarbiyaviy tizimlar, hozirgi kunda, aynan mana shu yo'nalishda rivojlanmoqda. Pedagogik yordam erkinlik, ijodkorlik, kattalar va bola o'rtasida haqiqiy demokratiya va insonparvarlikda yuzaga keladigan tarbiya xisoblanadi. Tarbiya maqsadini pedagogik yordam sifatida tarbiya tizimini falsafiy jihatdan qaralganda, innovatsiya hisoblanadi. Bu esa

maqsadga mos yangi tarbiya texnologiyasini ishlab chiqishga olib keladi. Tarbiya texnologiyasi bu tarbiyaning ma'lum maqsadlariga erishishga qaratilgan maxsus pedagogik uslublar tizimi. Har qanday tarbiya metodikasi, tarbiya texnologiyalaridan tashkil topadi. Masalan, o'smirlar bilan aloqa o'rnatish, jamoani rejalashtirish, pedagogik diagnostika texnologiyasi va boshqalar. Texnologiya – tarbiya metodikasining yakunlangan qismi bo'lsa, uslub esa o'z navbatida bu umumiy yoki shaxsiy pedagogik madaniyatda qayd etilgan tarbiya texnologiyasiga nisbatan yakunlangan elementdir. Uslub biror bir tarbiya masalasi bilan barqaror bog'liq bo'lsa, demak u oddiy tarbiyaviy texnologiya bo'lib qoladi.

XULOSA

Xulosa qilib aytganda, o'qituvchining umumiy madaniyati uning malakasi va kasbiy o'sishi uchun tayanch nuqtasida namoyon bo'ladi. O'qituvchi shaxsining umumiy rivojlanishida etakchi o'rinlardan birini uning axloqiy xususiyatlari egallaydi, bu insonning tashqi dunyo bilan aloqasini yaxshilik va yomonlik mezonlari asosida belgilaydi. Talabalar hayot muammolarini demokratik hal etishga imkon beradi. Bunday qoidalar erkinlik va mas'uliyatlilik doirasini belgilab beradi. Ushbu holatni intizomlilikni rivojlantirish kuchli vositasi sifatida tushunib, ko'pchilik hollarda tadqiqotlarimiz davomida kuzatishlarimiz natijasida aytim maktablarning tirishqoq izlanuvchi pedagoglari tomonidan o'zlarining qonunlarini, o'rtoqlik Nizomlarini yaratmoqdalar. Shuni unutmaslik kerakki, ushbu uslubda ham ma'lum xavfli tomonlari mavjud. O'qituvchi pedagog, ba'zi bolalar boshqalar ustidan nazoratchi bo'lib qolmasliklarini, liderlik, otomonlik tushunchalari avj olib ketmasligini kuzatib borish zarur. Bunday holatda bolalar jamoasida adovat ham yuzaga kelishi va bolalar qonunni bajaruvchilar va ularga qarshi kuzatuvchilarga ajralib qolishlari mumkin. Shunday qilib, yuqorida tasvirlangan uslublar to'plami yangi maqsad, pedagog yordam uchun texnologiyani belgilab beradi. Va mana shu mazmunda innovatsion texnologiyadan iborat bo'ladi.

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RAQAMLI TA'LIM MUHITIDA BO'LAJAK MUHANDISLARNING KASBIY KOMPETENSIYALARINI TAKOMILLASHTIRISH

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***Annotatsiya:** Mazkur maqolada O'zbekistonda raqamli ta'lim muhitida bo'lajak muhandislarning kasbiy kompetensiyalarini takomillashtirishni shakllantirish va texnika oliy ta'lim muassasalarida raqamli ta'lim muhitida muhandislarning kasbiy kompetensiyalarini takomillashtirishning vazifalari belgilab berilgan.*

***Keywords:** [raqamli ta'lim, kasbiy kompetensiya, kompetentlik, modulli o'qitish]*

KIRISH.

Hozirgi kunda dunyoda ta'lim sohasida raqamlashtirish yetakchi o'rinni egalladi. Bu borada respublikamizda ham oliy ta'limni tizimli isloh qilishning ustuvor yo'nalishlarini belgilash, zamonaviy bilim va yuksak ma'naviy-axloqiy fazilatlariga ega, mustaqil fikrlaydigan yuqori malakali kadrlar tayyorlash jarayonini sifat jihatidan yangi bosqichga ko'tarish, oliy ta'limni modernizatsiya qilish, ilg'or ta'lim texnologiyalariga asoslangan holda ijtimoiy soha va iqtisodiyot tarmoqlarini rivojlantirish maqsadida O'zbekiston Respublikasi Prezidentining 2019-yil 19-oktyabrdagi PF-5847-sonli "O'zbekiston Respublikasi Oliy ta'lim tizimini 2030-yilgacha rivojlantirish konsepsiyasini tasdiqlash to'g'risida"gi Farmoni qabul qilindi [1]. O'zbekiston Respublikasi Oliy ta'lim tizimini 2030-yilgacha rivojlantirish konsepsiyasida belgilangan vazifalar ijrosini izchil ta'minlash, shuningdek, oliy o'quv yurtlarining mustaqilligini kengaytirish, ular faoliyatida davlat ma'muriy boshqaruvini keskin kamaytirish hamda shu orqali o'zgaruvchan mehnat bozori talablariga javob bera oladigan yuqori malakali kadrlar tayyorlovchi OTMLarni shakllantirish maqsadida Respublikamiz Prezidentining 2021-yil 24-dekabrdagi "Davlat oliy ta'lim muassasalarining akademik va tashkiliy-boshqaruv mustaqilligini ta'minlash bo'yicha qo'shimcha chora-tadbirlar to'g'risida"gi [2] hamda "Davlat oliy ta'lim muassasalariga moliyaviy mustaqillik berish chora-tadbirlari to'g'risida"gi [3] Qarorlari asosida 2022-yil yanvar oyidan boshlab 35 ta oliy ta'lim muassasasida ushbu tizim joriy etildi.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Bunday rivojlanishning asosiy sharti kasblarga qo'yiladigan talablar va o'zgaruvchan qiymat yo'nalishlarini hisobga olgan holda raqamli muhitda yashash

va o'z kasbiy faoliyatini amalga oshirishga qodir bitiruvchini tayyorlashga qaratilgan milliy ta'lim tizimini modernizatsiya qilishdir. Ushbu muammoni hal qilish professor-o'qituvchilarning malakasiga qo'yiladigan talablarni va ularning o'quv jarayonini loyihalash hamda amalga oshirish uchun raqamli texnologiyalardan foydalanish kompetensiyasini oshirishni nazarda tutadi va masofaviy ta'limga yuqori ehtiyoj mavjud bo'lgan ayni paytda texnika yo'nalishi oliy ta'lim muassasalarida raqamli ta'lim muhitida bo'lajak muhandislarning kasbiy kompetensiyasini takomillashtirish zaruriyatini vujudga keltiradi. Zamonaviy O'zbekistonning ijtimoiy-iqtisodiy rivojlanishi turli xil kasb mutaxassislarini tayyorlashga yangi talablarni belgilaydi, bu esa malakali kadrlar tayyorlashda oliy ta'lim tizimi belgilangan maqsadlarga erishish uchun usul hamda vositalarni optimallashtirish asosida jahon standartlariga mos standartlarni ishlab chiqishni taqozo qiladi. Texnik innovatsiyalar bozorining rivojlanishi muhandisdan o'z kasbiy faoliyatini dinamik va yuqori texnologiyali kasbiy muhitda samarali amalga oshirish qobiliyatini talab qiladi, bu esa kasbiy muhandislik ta'limi tizimini yangi bosqichda modernizatsiya qilish vazifalarini dolzarblashtiradi. Tadqiqotlar shuni ko'rsatdiki, zamonaviy sharoitda institutda texnik mutaxassislarni tayyorlash jarayoni muhandislik faoliyatining doimiy o'zgaruvchan vazifalari va uni amalga oshirish shartlarini hisobga olgan holda tashkil etilishi kerak. Ushbu o'zgarishlar, shuningdek, respublikamizda innovatsion tizimning yuqori sur'atlarda rivojlanishi zamonaviy muhandislik faoliyatining kasbiy salohiyatiga ta'sir qildi va oliy ta'lim tizimidan innovatsion, ijodiy fikrlash qobiliyatiga, zamonaviy ilmiy-texnikaviy taraqqiyot jarayonida yuqori darajadagi texnik va yetarli fundamental bilimlarga ega bo'lgan, tadqiqot muammolarini mustaqil ravishda hal qiladigan hamda kasbiy muammolarni hal qilishning yangi texnologiyalarini tezda o'zlashtira oladigan mutaxassislarni tayyorlashni talab qiladi. Hozirgi vaqtda mehnat bozorida bo'lgan talab uchun muayyan kasbiy bilim, ko'nikma va malakalarga ega bitiruvchi bo'lish yetarli emas. Keyingi paytlarda pedagogika fanida kompetentlik va kompetensiya tushunchalarining o'zaro bog'liqligi to'g'risidagi masala ko'p ko'rilmoqda. Kompetentlik (ingl. "competence" – "qobiliyat") – faoliyatda nazariy bilimlardan samarali foydalanish, yuqori darajadagi kasbiy malaka, mahorat va iqtidorni namoyon eta olish demakdir.

MUHOKAMA VA NATIJALAR

Kompetentlik tushunchasi ta'lim sohasiga psixologik ilmiy izlanishlar natijasida kirib kelgan. Psixologik nuqtayi nazardan kompetentlik "noan'anaviy vaziyatlar, kutilmagan hollarda mutaxassisning o'zini qanday tutishi, muloqotga kirishishi, raqiblar bilan o'zaro munosabatlarda yangi yo'l tutishi, noaniq vazifalarni bajarishda, ziddiyatlarga to'la ma'lumotlardan foydalanishda, izchil

rivojlanib boruvchi va murakkab jarayonlarda harakatlanish rejasiga egalikni anglatadi. Kasbiy kompetentlik – mutaxassis tomonidan kasbiy faoliyatni amalga oshirish uchun zarur bo‘lgan bilim, ko‘nikma va malakalarning egallanishi va ularni amalda yuqori darajada qo‘llay olinishi hisoblanadi. Kasbiy kompetentlik mutaxassis tomonidan alohida bilim, malakalarning egallanishini emas, balki har bir mustaqil yo‘nalish bo‘yicha integrativ bilimlar va harakatlarning o‘zlashtirilishini nazarda tutadi. Shuningdek, kompetensiya mutaxassislik bilimlarini doimo boyitib borishni, yangi axborotlarni o‘rganishni, muhim ijtimoiy talablarni anglay olishni, yangi ma‘lumotlarni izlab topish, ularni qayta ishlash va o‘z faoliyatida qo‘llay bilishni taqozo etadi. Kompetensiya – bilim, malaka va shaxsiy sifatlarini ma‘lum sohada muvaffaqiyatli faoliyat uchun zarur bo‘ladigan qobiliyatlar majmui. Kasbiy kompetensiyaga ega mutaxassis o‘z bilimlarini izchil boyitib boradi, yangi axborotlarni o‘zlashtiradi, davr talablarini chuqur anglaydi, yangi bilimlarni izlab topadi, ularni qayta ishlaydi va o‘z amaliy faoliyatida samarali foydalanadi. Muhandis mutaxassislarining kasbiy vazifalarining tarkibiy va axborot tahlili ularning kasbiy faoliyatida ilmiy va tajriba ishlarni tashkil etish, kasbiy muhim ma‘lumotlarni analitik va sintetik qayta ishlash, fundamental bilimlar va majburiy fan sohalarida faoliyatning umumlashtirilgan algoritmlari asosida amaliy muhandislik muammolarini hal qilish qobiliyati bilan bog‘liq o‘zgarmas tarkibiy qismini aniqlashga imkon beradi. Shunday qilib, majburiy fanlarni o‘rganish bo‘yicha kasbiy tayyorgarlik doirasida asosiy kasbiy kompetensiyalarni shakllantirish va rivojlantirish, shu jumladan, talabalar tomonidan xulq-atvor standartlari, qadriyatlar va majburiy ta‘lim yo‘nalishlari bo‘yicha bilim, ko‘nikmalarni o‘zlashtirishga asoslangan amaliy va nazariy vazifalarni bajarish, kasbiy ahamiyatga ega bo‘lgan tajribani o‘zlashtirishga qaratilgan vazifa yangilanadi. Shuning uchun zamonaviy muhandisni tayyorlashni tashkil etish kasbiy rivojlanishda va doimiy ravishda takomillashtirilishda bo‘lgan kelajakdagi mutaxassisning asosiy kasbiy kompetensiyalarini shakllantirishga qaratilgan bo‘lishi kerak. Biroq ta‘lim jarayonida AKTdan foydalanish masalalarini yetarlicha nazariy va uslubiy jihatdan ishlab chiqish bilan masofaviy ta‘lim sharoitida bo‘lajak muhandisning asosiy kasbiy kompetensiyalarini shakllantirish muammosi bo‘yicha qo‘shimcha tadqiqotlar talab etiladi. Masofaviy ta‘lim sharoitida bo‘lajak muhandisning asosiy kasbiy kompetensiyalarini shakllantirish muammosi bo‘yicha ikki bosqichli tizimga o‘tish doirasida ushbu jarayonni amalga oshirishning tashkiliy-metodik asoslarini asoslash nuqtayi nazaridan muhandis kadrlar tayyorlash oliy ta‘lim muassasalarida qo‘shimcha tadqiqotlar talab etiladi.

Texnika oliy ta'lim tizimidagi tadqiqotlar va sinov tajribasi quyidagilar o'rtasidagi bir qator qarama-qarshiliklarni shakllantirishga imkon berdi:

- bo'lajak muhandislarning kompetensiyalarini rivojlantirish zarurati, ular orasida asosiy kasbiy kompetensiyalar mutaxassisning malakasini oshirish uchun asos bo'lib xizmat qiladigan va oliy ta'lim jarayonida rivojlanish muhandislarni kasbiy tayyorlashning mavjud tizimida nazariy va uslubiy yechimlarning yetarli darajada ishlab chiqilmaganligi;
- turli sohalarda mutaxassislar tayyorlash jarayonida axborot-kommunikatsiya texnologiyalaridan foydalanish bo'yicha katta tajriba va masofaviy ta'lim bo'yicha muhandis tayyorlashda kompetensiyaga asoslangan yondashuvni joriy etish mexanizmining nazariy va uslubiy jihatdan ishlab chiqilmaganligi.

Texnika oliy ta'lim muassasalarida raqamli ta'lim muhitida muhandislarning kasbiy kompetensiyalarini shakllantirishga nazariy va uslubiy yondashish lozim.

XULOSA

Texnika oliy ta'lim muassasalarida raqamli ta'lim muhitida muhandislarning kasbiy kompetensiyalarini shakllantirish jarayoni quyidagi hollarda samaraliroq bo'ladi:

- kompetensiyaga asoslangan yondashuvni amalga oshirish shartlari va vositalari asoslanadi;
- o'quv jarayoni muhandisning kasbiy tayyorgarligini tashkil etish modeli bo'yicha, masofaviy ta'lim sharoitida majburiy fanlarni o'rganishda talabanning o'quv-kognitiv faoliyatining o'ziga xos xususiyatlarini, o'zlashtirishni hisobga olgan holda amalga oshiriladi;
- o'quv jarayonining barcha subyektlari faoliyatini kompleks yondashuv va muvofiqlashtirishni ta'minlovchi masofaviy ta'lim sharoitida uni amalga oshirishning tashkiliy-metodik asoslari belgilanadi.

Oliy ta'lim muassasalarida raqamli ta'lim muhitida muhandislarning kasbiy kompetensiyalarini takomillashtirishning vazifalari:

1. O'zbekistonda ko'p bosqichli ta'limni rivojlantirish tendensiyalarini aniqlash va zamonaviy muhandisni tayyorlashda kompetensiyali yondashuvni amalga oshirishning o'ziga xos xususiyatlarini tahlil qilish.

2. Zamonaviy o'quv qo'llanma va metodlari asosida, shu jumladan, masofaviy ta'lim sharoitida kadrlar tayyorlash bo'yicha mavjud mahalliy va xorijiy tajribani tahlil qilish, majburiy bilimlarni o'rganish jarayonida muhandisning asosiy kasbiy kompetensiyalarini shakllantirish imkoniyatlarini asoslash.
3. Texnik mutaxassisning asosiy kasbiy kompetensiyalarini shakllantirish modelini ishlab chiqish va institutda masofaviy ta'lim sharoitida kasbiy tayyorgarlikni tashkiliy, texnologik va axborot-metodik ta'minlash tizimini loyihalash.
4. Institut axborot-ta'lim muhitining integratsiyalovchi komponenti sifatida majburiy fan bo'yicha elektron o'quv-uslubiy majmua mazmunini tanlashga yondashuvlarni asoslash va masofaviy ta'limda undan foydalanish metodikasini ishlab chiqish.
5. Taklif etilayotgan yondashuv samaradorligini eksperimental sinovdan o'tkazish.

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TAHRIRIYAT A'ZOLARI:

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va nashr etilgan ma'lumotlarning haqiqiyliги uchun javobgar emas.

Tashkilotchilar mualliflar va/yoki uchinchi shaxslar va tashkilotlarga maqolaning
e'lon qilinishi natijasida yetkazilishi mumkin bo'lgan zarar uchun javobgar emas.

