

INTERNATIONAL CONFERENCE

ON MULTIDISCIPLINARY SCIENCE

• • • •



OUR INDEXING



 <http://mjstjournal.com>

INTERNATIONAL CONFERENCE

ON MULTIDISCIPLINARY SCIENCE

• • • •



VOLUME 4 **ISSUE 04**

zenodo



Google
Scholar



OpenAIR



 <http://mjstjournal.com>

THE ESSENCE AND CONTENT OF THE EDUCATIONAL PROCESS IN PRIMARY EDUCATION

Abdunazarova Zebiniso Khudoyshekurovna*Termez state pedagogy
institute teacher***Makhamerajabova Gulsevar Ravshan girl***Termez state pedagogy
institute student***Abstract**

This article scientifically and theoretically analyzes the pedagogical essence and content of the educational process in the primary education system, its inextricable link with the educational process. It also highlights the role of education in the formation of spiritual, moral, social and personal qualities in primary school students, modern pedagogical approaches and the main directions of the content of education.

Keywords: upbringing, primary education, upbringing process, personal development, spiritual and moral upbringing, pedagogical process.

Login

In today's globalization and informatization environment, the education system is faced with the task of educating not only an educated, but also a highly spiritual, independent-thinking, socially active person. In this process, the primary education stage is of particular importance. Because it is during this period that the student's personal qualities, worldview, moral standards and social behavior begin to form. Therefore, studying the essence and content of the educational process in primary education on a scientific basis is an urgent pedagogical problem.

Annotation

This article provides a scientific and theoretical analysis of the pedagogical essence and content of the educational (upbringing) process in the system of primary education, as well as its close integration with the teaching and learning process. In addition, the role of upbringing in shaping the moral-ethical, social, and personal qualities of primary school pupils is examined, along with modern pedagogical approaches and the main directions of the content of upbringing.

Keywords: upbringing, primary education, educational process, personal development, moral and ethical upbringing, pedagogical process.

Introduction

In the context of globalization and rapid information development, the education system is faced with the task of educating not only knowledgeable individuals but also spiritually rich, independently thinking, and socially active personalities. In this process, the primary education stage holds particular importance, as it is during this period that the foundations of a learner's personal qualities, worldview, moral norms, and social behavior begin to form. Therefore, the scientific study of the essence and content of the upbringing process in primary education constitutes a pressing pedagogical issue.

Abstract

V dannoy state s nauchno-teoreticheskoy točki zreniya analiziruyutsya pedagogicheskaya sushchnost i sodержanie vospitatelnogo protsesa v sisteme nachalnogo obrazovaniya, a takje ego organicheskaya vzaimosvyaz s uchebnym protsessom. Krome togo, raskryvaetsya rol vospitaniya

v formirovaniy dukhovno-narvstvennyx, sotsialnyx i lichnostnyx kachestv u uchashchixsya chalnyx klassov, rassmatrivayutsya sovremennye pedagogicheskie podkhody i osnovnye napravleniya soderjaniya vospitaniya.

Key words: education, primary education, educational process, razvitie lichnosti, spiritual-moral education, pedagogical process.

Introduction

V usloviyax globalizatsii i aktivigo razvitiya informatsionnyx pered tekhnologiyax pered sistemoy obrazovaniya stavitsya zadacha vospitaniya ne tolko obrazovannyx, no i khovno razvityx, samostoyatelno msylyashchix i sotsialno activenyx lichnostey. V etom protsesse osoboe znachenie priobretaet etap nachalnogo obrazovaniya, poskolku imenno v dannyi period zakladyvayutsya osnovy lichnostnyx kachestv obuchayushchixsya, ix mirovozreniya, nraavstvennyx norm i sotsialnogo povedeniya. V svyazi s etim nauchnoe izuchenie suschnosti i soderjaniya vospitatelnogo protsesa v nachalnom obrazovanii yavlyaetsya aktualnoy pedagogicheskoy problemoy.

The pedagogical essence of the upbringing process: Upbringing is a continuous pedagogical process aimed at preparing a person for social life, forming in him moral, spiritual, aesthetic and legal norms recognized by society. The upbringing process in primary education is organized taking into account the age and psychological characteristics of students.

Primary school students are characterized by imitateness, emotional sensitivity and trust in adults. Therefore, the personal example of the teacher, communication culture and pedagogical skills are important in the process of upbringing. Upbringing at this stage is carried out not only through special events, but also through all components of the lesson process.

The process of upbringing is one of the central categories of pedagogy, representing a continuous and systematic activity aimed at forming a person as a socially active and spiritually mature person who meets the requirements of society. Upbringing is a complex pedagogical process that serves not only to instill certain moral norms, but also to develop the student's inner world, beliefs, value system and social behavior.

From a pedagogical point of view, the educational process is manifested in the unity of interrelated goals, content, form, methods and means. The main essence of this process is to harmonize the relationship between the individual and society, to consciously prepare the student for social life. Especially at the stage of primary education, the educational process is distinguished by the fact that it creates the foundation for personal development.

The psychological characteristics of primary school students - imitateness, emotional sensitivity, quick reaction and high trust in adults - are important factors determining the pedagogical nature of the educational process. Therefore, at this stage, the educational process should be organized on the basis of a more person-oriented approach. The personal example, communication culture and moral position of the teacher are the most effective means of educational influence.

The pedagogical essence of the upbringing process is also clearly manifested in its inextricable connection with the educational process. Along with imparting knowledge through education, upbringing forms qualities such as social responsibility, discipline, hard work, patriotism and humanity in students. In this sense, upbringing is considered the main mechanism that enriches knowledge with life experience and moral criteria.

In addition, the educational process is manifested as a two-way interaction between the educator and the student. In this process, the student's activity, independent thinking, and assimilation of

social experience are of great importance. Modern pedagogical approaches require the abandonment of command in the educational process and the formation of an educational environment based on cooperation, communication, and support.

The content of education in primary education: The content of education in primary education is determined on the basis of state educational standards, national values, and the needs of society. The main areas of educational content are as follows:

- **Spiritual and moral education** - the formation of qualities such as honesty, hard work, respect for elders, and patriotism;
- **Intellectual education** - developing independent thinking, interest in knowledge, and a creative approach;
- **Physical education** - adherence to a healthy lifestyle, increased physical activity;
- **Aesthetic education** - instilling a sense of beauty, love for art and nature;
- **Labor education** - the formation of a love of work, responsibility, and discipline.

These areas are inextricably linked and ensure the integrity of the individual's development.

The content of education in primary education is determined based on the social order of society, state educational policy, and national and universal values, taking into account the age, psychological, and individual characteristics of students. The content of education at this stage serves to form the initial and most important foundations of personal development.

The system of qualities that must be cultivated in primary school students is primarily aimed at their adaptation to the social environment, understanding of moral norms and acquiring conscious behavior. The content of education is not limited to individual educational activities, but is implemented through all academic subjects, extracurricular activities, and the general educational opportunities of the school environment.

The main areas of educational content in primary education are:

First of all, **spiritual and moral education** is the leading direction of the educational content of primary education. In this process, such moral qualities as honesty, truthfulness, respect for elders, kindness to younger ones, friendship and solidarity are formed in students. Also, education in the spirit of respect for national customs, traditions and values is of great importance.

Secondly, **patriotic and civic education** is aimed at forming in students a sense of loyalty to their homeland, national pride, respect for state symbols, and a sense of responsibility to society. In primary education, this direction is implemented through real-life examples and practical activities that are relevant to the minds of students.

Thirdly, **intellectual education** is an important component of the educational content, which involves developing students' interest in knowledge, independent thinking, logical thinking, and creative approach. This direction is carried out in close connection with the educational process.

Fourth, **labor education** serves to develop in students the skills of hard work, responsibility, discipline, and teamwork. In primary education, labor education is carried out through simple, age-appropriate tasks and is focused on organizing the practical activities of students.

Fifth, **aesthetic education** serves to instill in students a sense of beauty, a love for art and nature, and the development of artistic taste. This direction is implemented through lesson processes, musical and artistic activities, and activities in nature.

Sixth, the content of **physical education and healthy lifestyle** education aims to promote students' physical development, health, and positive attitude towards a healthy lifestyle. This direction is achieved by encouraging students' active movement and instilling hygiene skills.

In general, the content of education in primary education consists of complex, multifaceted and interrelated areas, aimed at ensuring the comprehensive development of the personality of students. The consistent and systematic implementation of the content of education is of great pedagogical importance in raising a spiritually mature, socially active and responsible person in the future.

Pedagogical conditions for organizing the educational process

The effectiveness of education in primary education depends on the following pedagogical conditions:

1. The continuity of education and upbringing;
2. Taking into account the individual and age characteristics of students;
3. Establishing family, school, and community partnerships;
4. Use of modern pedagogical technologies and interactive methods;
5. Teacher's professional competence and educational culture.

Conclusion

In conclusion, the educational process in primary education creates the foundation for personal development. Properly organized education at this stage helps students to successfully study at subsequent stages of education and take a worthy place in society. Therefore, a deep understanding of the essence and content of the educational process, its organization on a scientific basis is one of the important tasks of modern pedagogy.

The process of upbringing in primary education is the most important and decisive stage of personal development. It is during this period that the foundations of students' moral views, social behavior, life values, and worldview are formed. Therefore, organizing the upbringing process on a scientific basis, systematically and purposefully should be one of the priority tasks of pedagogical activity.

The results of the study show that the educational process in primary education is effective only when it is carried out in an integral unity with it, not separately from it. Each subject, lesson content and extracurricular activity has educational opportunities, through which spiritual and moral qualities, a sense of patriotism, diligence, discipline and responsibility are formed in students. This confirms the need to view education as an integrated pedagogical process.

It is also important that the content of education in primary education is based on the harmony of national and universal values, and is organized taking into account the age and individual characteristics of students. In the process of education, the teacher's personal example, pedagogical culture and professional competence are manifested as a decisive factor. Because primary school students are more likely to accept the behavior and attitudes of the teacher as a model.

In conclusion, it can be said that correctly defining the essence and content of the educational process in primary education, and improving it on the basis of modern pedagogical approaches, serves to educate a harmonious generation. This is an important factor in ensuring the social, spiritual and intellectual development of the future society, and places a great responsibility on the primary education system.

References

1. Abdullayev A. **Fundamentals of pedagogical technologies**. – Tashkent, 2020.
2. Juraev RX **Innovative approaches in education**. – Tashkent, 2019.
3. Materials of the Ministry of Public Education of the Republic of Uzbekistan.

- 4..Hardiyana, B., Shinobu, H., Effendi, D., Noviansyah, B., & Abdunazarova, ZK (2025). EVALUATING NOVICE ANGKLUNG PLAYERS' EMOTIONAL AND EXPERIENTIAL RESPONSES TO CUE-GUIDED SELF-TRAINING METHODS USING FACE RECOGNITION AND PARTICIPANT FEEDBACK. *NED University Journal of Research* , 22 (250).
5. Hardiyana, B., Shinobu, H., Effendi, D., Noviansyah, B., & Abdunazarova, ZK (2025). EVALUATING NOVICE ANGKLUNG PLAYERS' EMOTIONAL AND EXPERIENTIAL RESPONSES TO CUE-GUIDED SELF-TRAINING METHODS USING FACE RECOGNITION AND PARTICIPANT FEEDBACK. *NED University Journal of Research* , 22 (250).
6. Mamanazarova, F., & Abdunazarova, Z. (2025). STUDY OF THE PHILOSOPHICAL CHARACTERISTICS OF FORMING ECOLOGICAL EDUCATION IN PRIMARY CLASS STUDENTS. *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (7), 124-127.
7. Abdunazarova, Z. (2025). BEGINNING THE ROLE OF PHILOSOPHY IN SOLVING IMPORTANT PROBLEMS IN NATURAL SCIENCE TEACHING IN INNER CLASSROOMS. *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (3), 137-144.
8. Abdunazarova, ZX (2025). The importance and relevance of environmental education in primary school. *Construction and Education* , 4 (5), 276-279.
9. Abdunazarova, Z. Environmental Culture in Future Primary Classes Content and Philosophical Features of Formation. *Galaxy International Journal of Interdisciplinary Research* , 13 (4), 101-107.
10. Mamanazarova, F., & Abdunazarova, Z. (2025). STUDY OF THE PHILOSOPHICAL CHARACTERISTICS OF FORMING ECOLOGICAL EDUCATION IN PRIMARY CLASS STUDENTS. *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (7), 124-127.
11. Abdunazarova, Z. (2025). ESSENCE of philosophical views on nature in the ancient source "Avesta". *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (5), 37-41.
12. Abdunazarova, Z. Environmental Culture in Future Primary Classes Content and Philosophical Features of Formation. *Galaxy International Journal of Interdisciplinary Research* , 13 (4), 101-107.
13. Abdunazarova, Z. Environmental Culture in Future Primary Classes Content and Philosophical Features of Formation. *Galaxy International Journal of Interdisciplinary Research* , 13 (4), 101-107.
14. Mamanazarova, F., & Abdunazarova, Z. (2025). STUDY OF THE PHILOSOPHICAL CHARACTERISTICS OF FORMING ECOLOGICAL EDUCATION IN PRIMARY CLASS STUDENTS. *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (7), 124-127.
15. Mamanazarova, F., & Abdunazarova, Z. (2025). STUDY OF THE PHILOSOPHICAL CHARACTERISTICS OF FORMING ECOLOGICAL EDUCATION IN PRIMARY CLASS STUDENTS. *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (7), 124-127.

16. Abdunazarova, Z. (2025). ESSENCE of philosophical views on nature in the ancient source "Avesta". *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (5), 37-41.
17. Abdunazarova, Z. (2025). BEGINNING THE ROLE OF PHILOSOPHY IN SOLVING IMPORTANT PROBLEMS IN NATURAL SCIENCE TEACHING IN INNER CLASSROOMS. *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (3), 137-144.
18. Mamanazarova, F., & Abdunazarova, Z. (2025). STUDY OF THE PHILOSOPHICAL CHARACTERISTICS OF FORMING ECOLOGICAL EDUCATION IN PRIMARY CLASS STUDENTS. *Universal index library "Pedagogy and psychology in the modern world: theoretical and practical research"* , 4 (7), 124-127.



BOSHLANG'ICH TA'LIMDA FANLARARO INTEGRATSIYA ORQALI EKOLOGIK ONGNI SHAKLLANTIRISH METODIKASI**Ergasheva Muhsina To'xtayevna****Termiz davlat pedagogika instituti****Maktabgacha va Boshlang'ich ta'lim fakulteti Boshlang'ich ta'lim yo'nalishi 25-02-guruh talabasi****E-mail: ergasheva_muhsina1@gmail.com****Ilmiy rahbari: Panjiyev Jo'raqul Menglimamat o'g'li****Termiz davlat pedagogika instituti Boshlang'ich ta'lim kafedrası o'qituvchisi****E-mail: panjiyevjoraqul@gmail.com**

Annotatsiya: Ushbu tadqiqot boshlang'ich sinf o'quvchilarida ekologik ongni shakllantirishda fanlararo integratsiya metodikasini o'rganishga qaratilgan. Tabiiy fanlar, ona tili, matematika va tasviriy san'at kabi fanlarni birlashtirish orqali yosh avlodga atrof-muhit tushunchalarini tizimli va mazmunli tarzda yetkazish mumkin. Nazariy bilimlarni amaliy kuzatuvlar, ijodiy loyihalar va interfaol faoliyat bilan bog'lash o'quvchilarda nafaqat ekologik tushunchalarni rivojlantiradi, balki tanqidiy fikrlash, muammoni hal etish ko'nikmalari va tabiatga mas'uliyat hissini shakllantiradi.

Kalit so'zlar: ekologik ong, boshlang'ich ta'lim, fanlararo integratsiya, atrof-muhit ta'limi, barqaror xulq-atvor, integratsiyalashgan ta'lim metodlari, o'quv markazli ta'lim

Annotation. This study focuses on the methodology of fostering ecological awareness in primary school students through interdisciplinary integration. By combining subjects such as natural sciences, language arts, mathematics, and visual arts, environmental concepts can be conveyed to young learners in a systematic and meaningful way. Linking theoretical knowledge with practical observations, creative projects, and interactive activities not only develops students' ecological understanding but also enhances critical thinking, problem-solving skills, and a sense of responsibility toward nature.

Keywords: ecological awareness, primary education, interdisciplinary integration, environmental education, sustainable behavior, integrated teaching methods, student-centered learning.

Kirish. Boshlang'ich ta'limda fanlararo integratsiya (tabiat, ona tili, tasviriy san'at) orqali ekologik ongni shakllantirishda o'yin texnologiyalari, loyihaviy ishlar va tabiat qo'ynidagi amaliy mashg'ulotlar samarali metodlar hisoblanadi. Bu yondashuv o'quvchilarda atrof-muhitga ongli munosabat, mas'uliyat va tabiatni asrash ko'nikmalarini erta yoshdan rivojlantiradi. Ta'limda o'quvchilarga ma'lum bilimlar tizimini yetkazib, ularni faqat eslab qolishning o'zi bugungi kunda yetarli bo'lmay qoldi. Zamonaviy bilim olishda motivatsiya uyg'otish, mustaqil bilim olish ishtiyoqini hosil qilish, integratsiya asosida ta'lim berish dolzarb vazifalardan. Hozirgi davrda ekologik muammolar insoniyat oldida turgan eng dolzarb masalalardan biriga aylangan. Atmosfera, suv, tuproq ifloslanishi, o'simlik va hayvonot dunyosining qisqarishi, iqlim o'zgarishi kabi global muammolar zamonaviy ta'lim tizimiga ham jiddiy vazifalarni yuklamoqda. Bu esa yosh avlodda ekologik ong, ekologik madaniyat va tabiatga nisbatan ongli munosabatni shakllantirish zaruratini yanada oshirmoqda. Ayniqsa, boshlang'ich ta'lim bosqichida ekologik tarbiyani yo'lga qo'yish nihoyatda muhimdir. Chunki bu yosh davr bolalarning shaxs sifatida shakllanishi, axloqiy mezonlari va hayotiy qadriyatlarining rivojlanish bosqichidir. Shu sababli, ularning ongiga tabiatni asrash, atrof-

muhitga ehtiyotkorlik bilan munosabatda bo'lish, ekologik muammolarga befarq bo'lmaslik kabi tushunchalarni singdirish o'qituvchining asosiy pedagogik vazifalaridan biri hisoblanadi.

Muhokama va natijaviylik. Zamonaviy ta'lim texnologiyasi ana shunday talabni ruyobga chiqarishga qaratilgan ta'lim tizimidir. Texnologiyaning asosiy talabi o'quvchilarning puxta bilim olishi, bilimlarni o'zlashtirishda faollik ko'rsatishi, mustaqil fikrlashi, ta'limda aniq samarali natijaga erishish hisoblanadi.

Mazkur me'yoriy - huquqiy hujjatlarda asosiy e'tibor o'sib kelayotgan yosh avlodda ong tafakkur va madaniyatni rivojlantirishga qaratilgan bo'lib, uzluksiz ta'lim tizimining har bir bo'g'ini, xususan umumta'lim maktablarida o'qitiladigan barcha o'quv fanlari mazmunidan kelib chiqqan holda, fanlararo aloqadorlik mazmunidagi ta'lim - tarbiya tizimini belgilash va amalga oshirish zarur.

Boshlang'ich sinflarda o'quv fanlarini fanlararo aloqadorlik mazmunida o'qitish o'quvchilarning mantiqiy tafakkurini shakllantirishda muhim ahamiyatga ega. Integratsiyalashgan ta'limni takomillashtirish texnologiyasi jarayonida o'quvchilar ongida yangi fikr yuritishga, ma'lum bir fanni mukammal bilib olishga va fanlarga bo'lgan qiziqishini orttirishga sabab bo'ladi.

O'quvchilar o'zlarining amaliy faoliyatlarida yangi dalillar, bilim va tushunchalarni o'rganadilar va bu orqali mavjud amaliy faoliyat asosida darslarda o'rganilgan yangi mavzular umumlashtiriladi. Natijada ular o'quvchilarda hosil bo'lgan bilim, ko'nikma, malaka va kompetensiyalarga aylanadi.

Integratsiya va pedagogik faoliyat- meyor va ijodning, fan va san'atning uyg'unlashishi sanaladi. Shuning uchun ham integratsiyalashgan ta'limda mavjud o'quv faoliyatining rang-barang usullarini to'g'ri birlashtirish muhim. Zero, muvaffaqiyat ta'lim va tarbiya natijasiga bog'liq jarayon hisoblanadi.

Fanlararo integratsiyalash o'qituvchi tomonidan qo'llanilganda o'quv-tarbiya ishlarining sifati oshadi va ayni o'zi o'rganayotgan fanni yanada chuqurroq o'zlashtirishga sharoit yaratib beradi. O'qituvchi o'z ish faoliyatida bu bog'lanishlarni darsning mazmuniga qarab amalga oshirishi lozim. Fanlararo bog'lanish o'quvchilarda tabiatga bo'lgan ruhiy his-tuyg'ularni, ijodkorlik qobiliyatini oshiradi.

Boshlang'ich sinf o'quv fanlarini integratsiyalash quyidagi tartibda tizimlashtiriladi. Jumladan, ona tili va o'qish savodxonligi, tabiiy fanlar (tabiatshunoslik), matematika, texnologiya, tarbiya kabi fanlarni o'zaro bog'lab aloqadorlikda o'qitish ko'zda tutiladi.

O'qituvchi faoliyati o'rgatuvchi faoliyat va o'quvchi faoliyati o'rganuvchi faoliyat barobarligi (adekvatli) hisoblanadi. Faoliyatning umumiy tuzilishi: maqsadlar, rag'batlar, vositalar, natijalar, nazorat va turli fanlar bo'yicha sintezlashni hisobga olgan holda, o'zaro baholash, o'zaro nazorat qilish sanaladi.

Avvalo, qaysi darslar integratsiyalash uchun mos kelishini aniqlab olish kerak. Bunday darslarning asosi-turli fanlar asosiy mavzulari mazmunining yaqinligi va mantiqiy aloqadorligi hisoblanadi.

O'quvchilarning bu xususiyatlarini hisobga olib, qiziqishlarini qo'llab-quvvatlash uchun bilim olishga bo'lgan ehtiyojlarini yangi mazmun bilan to'ldirib turish lozim. Bu o'quvchilarga hayotdagi o'zaro aloqalarni ochib berishga hamda tabiatdagi turli-tumanliksiz inson yashay olmasligini tushunib yetishiga imkoniyat yaratadi.

Ta'limda fanlararo integratsiya, shuningdek, zamonaviy ta'lim texnologiyalari, jumladan, ta'limni kompyuterlashtirish va axborotlashtirish kabi vositalar muhim tashkil etuvchi vositalar sifatida namoyon bo'lishi mumkinligi alohida ta'kidlanadi. Integratsiya tabiiy fanlar mazmunida insonparvarlashuvining asosiy mexanizmi hisoblanadi.

Shuningdek, o'quv fanlariga oid bilim va qiziqishlarni rivojlantirishning muhim sharti hisoblanadi. O'quv materialini mavzular bo'yicha tahlil etish yo'li bilan turli o'quv fanlarining qaysi mavzulari bir-biri bilan aloqadorligi yuzaki ravishda aniqlansa, tarkibiy tahlil etish orqali o'quv materialining tashkil etuvchi tushunchalari, dalillari, qonuniyatlari, hukm, xulosalari, tasavvurlari orasidagi aloqadorlik o'rnatiladi.

Fanlarni integratsiyalash muammosini o'rganish, tatqiq etishda shu narsa ma'lum bo'ldiki, fanni va ilmiy bilimlarni integratsiyalash jarayonining negizi moddiy olamning birligi, ya'ni tabiat, jamiyat va uni anglashning o'zaro uzviyligi. Fanlar o'rtasidagi uzviylik, o'zaro bog'liqlikning rivoji, bu sohada axborot vositalarining muhim ahamiyat kasb etishi natijasida ta'lim-tarbiya jarayonida erishilayotgan yutuqlar tabiat, jamiyat, texnika sohasi-moddiy olamda ham namoyon bo'lmoqda. Bu o'zaro ta'sir har bir fanning ichki tabiiy rivoji uchun zarur omil bo'lib sanaladi.

O'quv jarayonida fanlararo aloqadorlik mazmunidagi bilim, ko'nikma, malaka va kompetensiyalarni o'rnatish ta'limni integratsiyalashgan yondashuvining metodik asosi hisoblanadi va bu jarayonda turli darslarga, tushunchalarga ko'p marta qaytishi, ularni chuqurlashtirish va boyitish, yoshga xos xususiyatlarni hisobga olgan holda tushunarli bo'lgan muhim bilimlarni berish orqali erishish mumkin.

Xulosa qilib aytgandigan bo'lsak, boshlang'ich sinf o'quvchilarini o'qitishni samarali tashkil etish, pedagogik texnologiyalarning mazmuni, shakl va vositalari, ta'lim berishda pedagogik texnologiyalardan to'g'ri va unumli foydalanish uslublari, kafolatlangan natijaga erishish uchun olib borilayotgan ta'lim sohasidagi yangiliklarni o'rganish, amaliyotda foydalanish ishning amaliy ahamiyatini belgilaydi. Ta'lim jarayoni nihoyatda murakkab jarayon bo'lganligi uchun ta'lim samaradorligi pedagog va o'quvchi faolliligiga, ta'lim vositalarining mavjudligiga, ta'lim jarayonining tashkiliy, ilmiy, metodik mukammalligiga bog'liq.

Foydalanilgan adabiyotlar ro'yxati:

1. Norbo'tayev X.B. Boshlang'ich sinflarda integratsiyalashgan ta'lim. Darslik. - Toshkent : "Innovatsiya-Ziyo", 2023, 174 b.
2. Mavlonova R.A., Rahmonqulova N.H. "Boshlang'ich ta'limning integratsiyalashgan pedagogikasi". O'quv qo'llanma. -Toshkent. "Ilm Ziyo"- 2013.-192 b.
3. Panjiyev , J. (2023). ONA TILI VA O'QISH SAVODXONLIGI DARSLARIDA TARQATMA MATERIALLARNI RASMLAR ASOSIDA TASHKIL ETISH. *Interpretation and Researches*, 2(1).
4. Jurakul PANJIEV. (2023). IMPROVEMENT OF ECOLOGICAL CONCEPTS IN PRIMARY CLASS STUDENTS BASED ON INTEGRATION OF SCIENCES. *World Bulletin of Social Sciences*, 27, 84-89.
5. Jurakul PANJIEV. (2023). PRIMARY CLASS CONTENT OF MATERIALS ON IMPROVING THE STUDENTS' ECOLOGICAL CONCEPTS BASED ON THE INTEGRATION OF THE SCIENCES. *World Bulletin of Social Sciences*, 27, 90-95.
6. Jurakul Panjiev. (2023). PEDAGOGICAL AND PSYCHOLOGICAL FOUNDATIONS OF INTEGRATION OF MODERN PRIMARY EDUCATION LESSONS. *Academia Repository*, 2(11), 37-45.

INVESTIGATION OF AUTOMATIC REACTIVE POWER COMPENSATION IN
POWER SUPPLY SYSTEMSB.M.Husanov¹, M.A.Namozov²¹⁾ PhD, Toshkent davlat texnika universiteti, Toshkent, 100095, O'zbekiston;
husanovbaxtiyor7@gmail.com²⁾ Magistr, Toshkent davlat texnika universiteti, Toshkent, 100095, O'zbekiston;
makhmudnamozov777@gmail.com**Introduction**

At present, improving the efficiency of electricity use at industrial enterprises is one of the most important tasks. In production processes, the widespread use of asynchronous motors, transformers, welding units, compressors, and other inductive electrical consumers causes a significant increase in reactive power consumption. The growth of reactive power leads to an increase in current in electrical networks, higher active power losses, voltage drop, overloading of network elements, and deterioration of the power factor. As a result, the technical condition of the power supply system worsens, the risk of emergency operation increases, and energy use becomes economically inefficient.

In many enterprises, capacitor banks are used to reduce reactive power consumption. However, under conditions where the load changes during the day, within shifts, or according to technological cycles, simple uncontrolled capacitor banks do not always ensure high efficiency. In some cases, compensation is insufficient, while in others overcompensation occurs. This may cause voltage rise above permissible limits, overheating of equipment, and a reduction in the service life of capacitor installations. Therefore, the issue of automatically controlling reactive power in accordance with real operating conditions is highly relevant.

Main Part

Reactive power compensation is based on supplying part of the reactive demand of inductive loads locally, near the point of consumption. This reduces the transfer of reactive power over long distances, thereby decreasing line current, reducing active power losses, improving voltage stability, and increasing the effective utilization of network capacity.

The considered system operates in a three-phase, four-wire 0.4 kV low-voltage network supplied by a 10/0.4 kV transformer. To ensure automatic control, the regulator receives voltage and current signals from measuring transformers and continuously evaluates the main electrical parameters, including active power, reactive power, apparent power, and power factor. The control strategy is formed on the basis of these real-time measurements.

As shown in Fig. 1, the automatic reactive power compensation system consists of a measuring unit, a discrete control module, a power supply unit, a microcontroller, a relay, and a capacitor bank switched through electromagnetic contactors. After processing the measured network parameters, the microcontroller generates switching commands for the capacitor bank stages. This enables stepwise regulation of compensation power and ensures maintenance of the required power factor under variable load conditions.

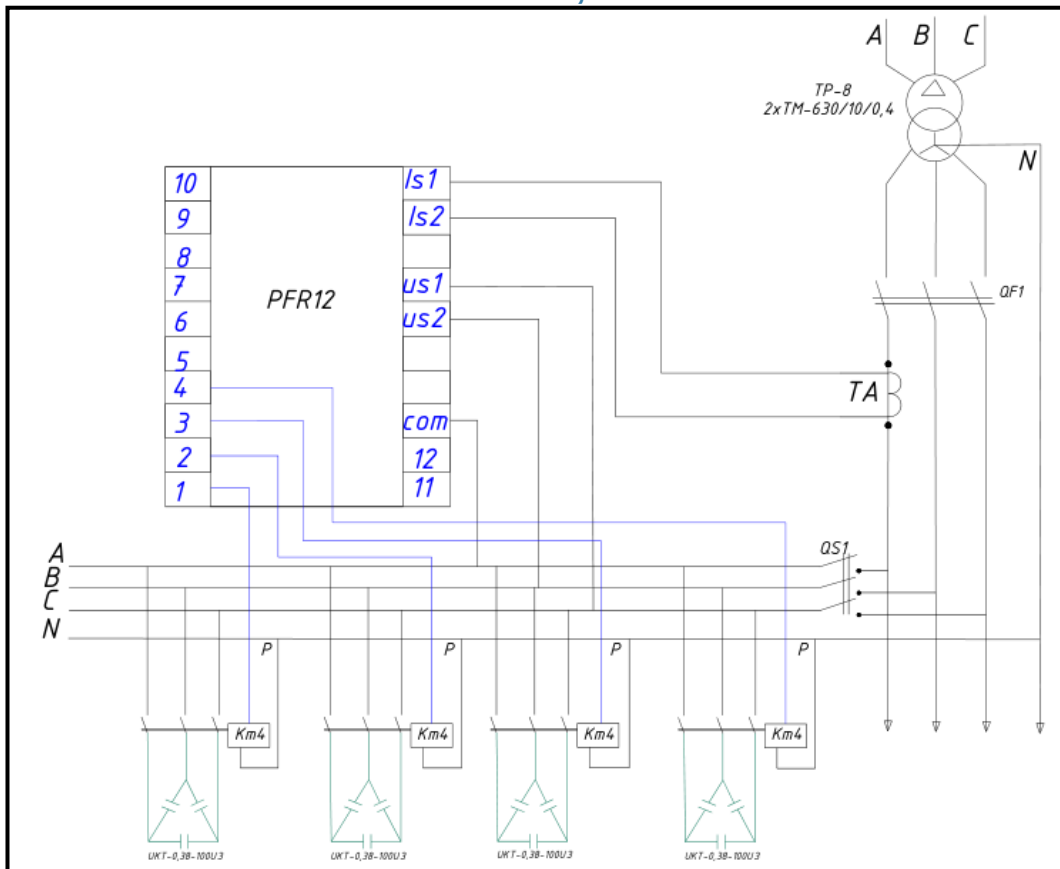


Fig.1. Structural diagram of an automatic reactive power compensation system based on a microcontroller regulator and capacitor bank.

In practical systems, capacitor banks are divided into several stages, each switched by a separate electromagnetic contactor. This allows stepwise regulation of reactive power according to load conditions. When the power factor decreases under inductive operation, the regulator sequentially connects capacitor stages; under overcompensation, the corresponding stages are disconnected. Therefore, compensation is performed dynamically rather than statically.

Such an automatic system reduces not only reactive power flow, but also line current, active power losses, voltage deviations, and the loading of transformers and cables. Microprocessor-based regulators further improve reliability through functions such as sequential switching, overcompensation protection, voltage monitoring, and switching frequency limitation.

However, capacitor-bank compensation is less effective in networks with rapid load variations or high harmonic distortion. In such cases, FACTS-based devices such as STATCOM and SVC are more suitable. As shown in Fig. 2, STATCOM provides fast and continuous reactive power control through a voltage source converter, making it effective for dynamic load conditions and improved voltage stability.

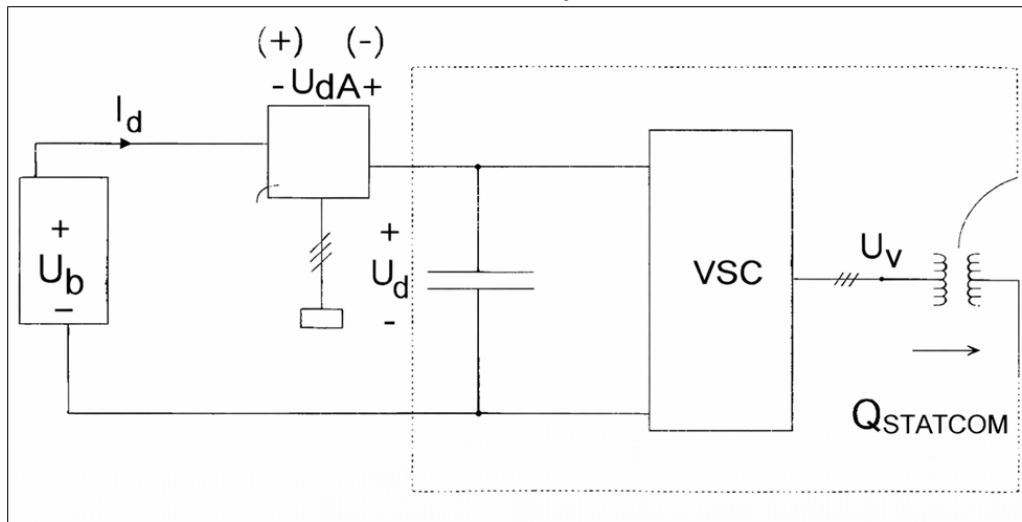


Fig.2. Simplified functional diagram of a STATCOM based on a voltage source converter (VSC).

A comparison of conventional capacitor-bank compensation and STATCOM indicates that each solution is effective under specific operating conditions. For most 0,4 kV industrial power supply systems, regulator-controlled multi-stage capacitor banks represent a technically practical and economically efficient option. In contrast, STATCOM is more suitable for networks with rapid load variations, continuous compensation requirements, or significant voltage disturbances. Therefore, the selection of compensation technology should be based on technical, economic, and operational considerations.

For low-voltage industrial networks, automatic compensation using a multi-stage capacitor bank and a microprocessor regulator remains one of the most rational solutions. Its simplicity, reliability, and ease of operation ensure high practical efficiency. Moreover, locating reactive power sources close to load nodes improves performance by reducing reactive power circulation in the main network and enhancing the utilization of existing infrastructure.

Conclusion

Reactive power compensation is essential for improving power quality and energy efficiency in industrial power supply systems. In networks with a high share of inductive loads, excessive reactive power flow causes voltage deviations, higher active power losses, and overloading of network elements. An automatic compensation system based on a microprocessor regulator and multi-stage capacitor banks effectively mitigates these problems by maintaining the power factor at the required level in real time. As a result, energy losses are reduced, voltage quality is improved, equipment loading is lowered, and overall system reliability is enhanced. Therefore, the application of automatic reactive power compensation in industrial enterprises is both technically and economically justified.

DON JO'XORI NAVLARINING O'SISHI, RIVOJLANISHI VA AYRIM MORFOLOGIK KO'RSATKICHLARIGA AGROOMILLARTA'SIRI**Mamatkulov Ilxom Ibragimovich.,**

“Denov tadbirkorlik va pedagogika instituti”

dotsenti, q.x.f.f.d., (PhD)

Xushboqova Suroyyo Ismoil qizi

“Denov tadbirkorlik va pedagogika instituti”

talabasi

Annotatsiya. Ushbu tadqiqotda don jo'xori navlarining o'sishi, rivojlanishi va asosiy morfologik ko'rsatkichlariga agroomillarning ta'siri o'rganilgan. Maqolada turli xil agroomil moddalari (organik va mineral o'g'itlar, stimulyatorlar va boshqalar) qo'llanilgan tajriba natijalari keltirilgan. Tadqiqot natijalariga ko'ra, agroomillar o'simliklarning bo'yi, poya yo'g'onligi, don hosili va ildiz tizimining rivojlanishiga ijobiy ta'sir ko'rsatgan. Shuningdek, ishlatilgan agroomillarning samaradorligi don jo'xorining nav xususiyatlariga bog'liq holda tahlil qilingan. Tajribalardan olingan ma'lumotlar asosida eng samarali agroomil turlari va ularni qo'llash me'yorlari aniqlangan. Ushbu ish don jo'xori yetishtirishda hosildorlikni oshirish va o'simliklarning morfologik ko'rsatkichlarini yaxshilashda agroomillardan oqilona foydalanish imkoniyatlarini asoslab beradi.

Kalit so'zlar: Don jo'xori (*Zea mays L.*), nav, agroomil, o'sish dinamikasi, morfologik ko'rsatkichlar, poya balandligi, ildiz tizimi, hosil elementlari, mineral o'g'itlar, o'simlik o'sish regulyatorlari.

Abstract. This study examines the effect of agrochemicals on the growth, development, and main morphological parameters of maize varieties. The article presents the results of experiments using various agrochemical substances (organic and mineral fertilizers, stimulants, etc.). According to the research results, agrochemicals had a positive effect on plant height, stem thickness, grain yield, and root system development. Furthermore, the effectiveness of the applied agrochemicals was analyzed in relation to the varietal characteristics of maize. Based on the experimental data, the most effective types of agrochemicals and their application rates were determined. This work substantiates the possibilities of rational use of agrochemicals in maize cultivation to increase productivity and improve morphological parameters of plants.

Keywords: maize (*Zea mays L.*), variety, agrochemicals, growth dynamics, morphological parameters, stem height, root system, yield components, mineral fertilizers, plant growth regulators.

KIRISH

Bugungi kunda dunyo miqyosida don jo'xori yetishtirish bug'doy, sholi, makkajo'xoridan keyin to'rtinchi o'rinni egallab, uning asosiy qismi 4 ta davlat, ya'ni Meksika yiliga 10,7 mln, AQSh 6,1 mln, Argentina 2,4 mln tonna va Yaponiya 1,9 mln tonnadan ortiq ishlab chiqarib yetakchilik qilmoqda. Dunyo bo'yicha don jo'xori 70-75 million gektar maydonga ekiladi. So'nggi 30 yil ichida jo'xori ekiladigan maydon yer yuzida 60 foizga, don yetishtirish esa-244% ga ortgan.

Dunyoda jo'xori o'simligidan yuqori sifatli urug'lik va tovar don hosili yetishtirishda maqbul ekish muddati, me'yori, sxemasi, tup sonlarini aniqlash hamda don va yem-xashak yetishtirish texnologiyasini takomillashtirish dunyo amaliyotida dolzarb hisoblanadi.

Global iqlim o'zgarishi sharoitida jo'xori yetishtiruvchi davlatlarda noqulay tuproq sharoiti, suv tanqisligi, sho'rlanish, yuqori harorat jarayonlarini yumshatish chora-tadbirlarini ishlab chiqish, mo'l va sifatli hosil olishga chidamli navlar yaratish hamda yangi maqbul yetishtirish agrotexnologiyalarini ishlab chiqish orqali erishilmoqda. Shu nuqtai nazardan don jo'xori mahsulotlarini ishlab chiqarishni ko'paytirish uchun yangi navlarni yetishtirish texnologiyalarini ishlab chiqish va keng joriy etish dolzarb hisoblanib, bunga alohida e'tibor ko'rsatilmoqda.

O'zbekiston Respublikasi Prezidentining 2019 yil 18 martdagi PQ-4243-son «Chorvachilik tarmog'ini yanada rivojlantirish va qo'llab-quvvatlash chora-tadbirlari to'g'risida» gi qarorining 9-bandida ozuqabop ekinlarning yangi navlari va duragaylarini yaratish, ularning agrotexnologiyalarini takomillashtirish, birlamchi urug'chilik ishlarini olib borish, tuproq holatini yaxshilovchi kuchsiz va o'rta darajada sho'rlangan tuproq sharoitlariga mos bo'lgan ozuqabop ekinlar maydonlarini kengaytirish kabi qator vazifalar belgilangan. Bu borada yetishtirish agrotexnikasini ishlab chiqish, almashlab ekish tizimlariga bunday ekinlarni kiritish, oziq-ovqatda parxezbop donlar va chorvachilikda sifatli yem-xashaklar hajmini oshirish bo'yicha ilmiy-tadqiqotlar ko'lamini kengaytirish maqsadga muvofiq hisoblanadi.

Tadqiqotning maqsadi

Don jo'xori "Massino" navi o'simligidan yuqori sifatli urug'lik, tovar don va sifatli yem-xashak hosili yetishtirishni shakllantiradigan maqbul ekish muddati, me'yori, sxemasi, tup sonlarini aniqlash hamda don va yem-xashak yetishtirish hajmini oshirish orqali qishloq xo'jaligida iqtisodiy samaradorlikka erishishdan iborat.

Tadqiqot natijalarining ilmiy va amaliy ahamiyati.

Tadqiqot natijalarining ilmiy ahamiyati Surxondaryo viloyatining tipik bo'z tuproqlari sharoitida don jo'xori "Massino" navi o'simligini parvarishlashda maqbul ekish muddati, me'yori, sxemasi va o'simlik tup sonlarini qo'llash orqali o'simlikning laboratoriya va dala unuvchanligi, o'sishi, rivojlanishi, barg sathi, fotosintetik faoliyati va quruq modda to'plash faoliyatining jadallashishi, asosiy hosil elementlarini shakllanishi, don va yem-xashak hosili hamda uning texnologik sifat ko'rsatkichlari ilmiy asoslanganligi bilan izohlanadi.

Tadqiqot natijalarining amaliy ahamiyati.

Don jo'xori o'simligidan urug'lik, tovar don, yem-xashak hosilini ta'minlaydigan maqbul ekish muddatlari (10.04-20.04) va me'yorini (3,9-4,3 kg/ga) aniqlash natijasida yangi don jo'xori "Massino" navini maqbul yetishtirish texnologiyasi elementlari ishlab chiqildi.

Tadqiqotlar mobaynida, o'rganilayogan agrotexnologik omillar, ya'ni jo'xori navlarini ekish muddati, me'yori, sxemasi va tup soni o'simliklarni o'sish va rivojlanish davrlariga turlicha ta'sir etgani kuzatildi.

Lekin, ikki navda ham o'simliklarni o'sish davridagi farq keskin kuzatilmay, albatta tabiiy ravishda erta muddatlarda ekilgan o'simliklar bo'yi 5-6 sm ga yoki undan ortiqroqqa (8-10 sm gacha) farq qilganligi aniqlandi.

Kechki ekilgan muddatlardagi 110 ming o'simlik qalinligidagi o'simliklar balandligi ikkala navda ham o'rtacha 4,3-7,2 smga farq qilganligi qayd etildi.

Keltirilgan jadval ma'lumotlariga e'tiborni qaratsak, andoza navida I-ekish muddati 90 ming tup o'simlik, 70×16-1 ekish sxemasini ro'vaklash davridagi balandligi 164,5 smni tashkil etib, 100

ming o'simlikka nisbatan 2,4 smga pastroq bo'lganligi, bu esa asosan o'simlik soni kamroq bo'lganligi, o'simliklar durkun o'sganligini sabab etib ko'rsatish mumkin.

III-muddat 90, 100, 110 ming tup sonida o'simliklar bo'yini ortish tendensiyasi qayd etilib, 90 ming o'simlikka nisbatan 100 ming tupda 6,1 sm ga, 110 mingda esa 6,2 sm ga yuqori bo'lganligi andoza "O'zbekiston-5" navida aniqlandi.

Bu holatni III-ekish muddatida kechligi hamda o'simlik soni ko'pligi, o'simliklar uchun yorug'lik, foydali harorat kamligi hamda vegetatsiya davrini qisqarishi bilan izohlash mumkin.

"Massino" naviga kelsak, I-muddatda ekishda 90 ming o'simlikda o'rtacha balandlik 114,7 sm ni, 100 mingda 117,3 sm ni, 110 mingda esa 118,7 sm ni tashkil etdi. Jadval ma'lumotlarini ta'kidlashicha, ro'vaklash davrida "Massino" navi o'simliklarining balandligi andoza navga nisbatan mos ravishda 49,8, 49,6, 53,7, sm ga past, bu esa navning biologik xususiyatlariga bog'liq ekanligi aniqlandi.

O'simlik soni ortgan sayin, andoza navdagi kabi o'simlik bo'yini balandroq bo'lishi kuzatildi. Shunday qonuniyat ekishning II va III muddatida ham qayd etildi. Jadvalda ro'vaklash davrida o'simliklar balandligi ko'rsatkichlarini keltirishining asosiy sababi, bu fazada deyarlik jadal o'sish tugaydi hamda o'rganlayotgan faktorlarning haqiqiy ta'siri namoyon bo'la boshlaydi. Andoza navida o'simliklar gullash davrigacha yana 10-15 sm gacha, "Massino" navida o'simliklar bo'yini o'sish darajasi past bo'lib, o'rtacha 9,8-8,0 sm ni tashkil etgan.

Demak, "Massino" navi o'simliklarini asosiy o'sish davri gullash fazasigacha davom etsa, andoza navida esa sut pishish davrigacha davom etishi aniqlandi. Jadval ma'lumotlarini ta'kidlashicha andoza navida o'simlik bo'yini o'sishi donni sut pishish, "Massino" navida esa gullash davrida deyarlik to'xtatishi aniqlandi.

Ozuqa ekinlaridan eng yuqori yashil massa hosili yetishtirishda diyarlik o'simlik bo'yi asosiy o'rinni egallaydi. Tajribada o'rganilayotgan don jo'xori navlarini ekish muddatlari bo'yicha o'simlik bo'yi o'rganilganda, birinchi muddatda (10.04) o'simlik qalinligi 90 ming tupda bo'lgan variantda andoza "O'zbekiston-5" navida o'simlik bo'yi – 185,0 sm, 100 ming tupda – 187,3 sm, 110 ming tupda – 190,1 sm, "Massino" navida ushbu ko'rsatkichlar (tegishli ravishda) – 125,3; 127,1 va 129,0 sm ni tashkil etganligi aniqlandi.

Demak, ikki navda ham o'simlik soni ortishi bilan o'simlikni baland bo'lish qonuniyati kuzatildi. Ikkinchi va uchinchi muddatlarda ham o'simlik bo'yi o'simlik soni ko'paygan sari andoza "O'zbekiston-5" navida 90 ming tupda – 186,2 sm, 100 ming tupda – 187,9 sm, 110 ming tupda – 190,7 sm, "Massino" navida ham huddi shunday holat kuzatilib, 90 ming tupda – 126,8 sm, 100 ming tupda – 129,1 sm, 110 ming tupda – 134,2 sm ga teng bo'lganligi qayd etildi.

Demak, o'simlik tup soni ortgan sari o'simlik balandroq o'sganligi kuzatildi. Biroq, uchinchi muddatda "Massino" navida qolgan ikkita muddatdagi variantga nisbatan o'simlik bo'yi 5,6-3,3 sm ga pastroq bo'lganligi kuzatildi.

O'simlik tup qalinligi har bir muddatda 10 ming tupdan oshgan sari o'simlik bo'yi har ikkala navda ham o'rtacha 2,3-5,6 sm ga baland bo'lganligi aniqlandi. Buni esa quyosh nuridan to'liq foydalanishi va fotosintez jarayoni bir me'yorda kechishi uchun o'simlikni biologiyasida belgilangan samarali issiqlik yig'indisidan foydalanish qonuniyatiga mos kelishi bilan izohlash mumkin.

Demak, "Massino" navi o'simligi andoza navga nisbatan 60,0 sm ga pastroq bo'lib, uning shakl tuzilishi, ya'ni gabitusi mexanizatsiya yordamida o'rib-yig'ib olish qullay hisoblanadi. Shuningdek, bu hosilni qushlar gallasidan hamda o'rim-yig'im davrida hosil nobudgarchiligini kamayishiga xizmat qiladi.

Ma'lumki, don shakllanishda jo'xoring barg soni, sathi hamda uning joylashish tartibi katta rol o'ynaydi. Barg sonini shakllanish dinamikasini rivojlanish fazalari bo'yicha tahlil qilsak. Jadval ma'lumotlariga e'tibor qaratsak, andoza "O'zbekiston-5" don jo'xori navida barcha ekish muddatlari, me'yori, sxemasi va tup sonida bir o'simlikdagi barglar soni o'rtacha 10,6-11,8 donani tashkil etdi.

Demak, andoza navida barg soni deyarlik o'zgarmas, konstant ekanligi qayd etildi. "Massino" navi biologik serbarg hisoblanib o'rtacha 15,8 dan 17,0 donanacha barg bir o'simlikda joylashishi aniqlandi. Lekin barglar ayrim rivojlanish fazalariga mos ravishda ortib borish qonuniyati, ya'ni andozaga nisbatan keskin farqlanish boshidanoq jihati aniqlandi. Jumladan, ro'vaklash fazasida o'rtacha 14,2-16,4 dona, gullashda 15,8-17,7 donani tashkil etib, don pishish davrlari boshidanoq bu sonlarni o'zgarmaganligi aniqlandi. Demak, andoza navga nisbatan "Massino" navida bir o'simlikdagi barg soni 5,2-5,8 donaga ko'p ekanligi qayd etildi. Bu esa o'simliklarni o'sish va rivojlanish davrida intensivlik darajasi yuqori bo'lishiga, don hosildorlik elementlarini shakllanishiga hamda mo'l va sifatli hosil olinishiga olib keldi. "Massino" navida ekish muddati, me'yori, sxemasi, o'simlik tup va barg soni hamda uning sathini sezilarlik ta'siri aniqlandi.

Tajribada tadqiq qilinayotgan andoza "O'zbekiston-5" navini ro'vagi tik o'suvchi, "Massino" naviniki esa egilgan, konussimon shaklda. Andoza "O'zbekiston-5" navida ro'vak uzunligi tup soni ko'paygan sari, o'sib borganligi aniqlandi. Birinchi muddatda andoza "O'zbekiston-5" navi 90 ming tupda – 27,5 sm, 100 ming tupda – 28,7 sm, 110 ming tupda 28,5 sm ni tashkil etgan bo'lsa, "Massino" navida 90 ming tupda 25,8 sm bo'lib, qolgan o'simlik qalinliklarda 24,7 sm bo'lib, 1,1 sm ga qisqaroq ekanligi kuzatildi. Qolgan muddatlarda andoza "O'zbekiston-5" navida ikkinchi muddatda 90 ming tupda – 27,0 sm, 100 va 110 ming tup sonlarida – 29,0 sm, uchinchi muddatda esa 90 ming tupda – 29,0 sm, qolgan o'simlik qalinliklarida – 27,0 sm, "Massino" navida esa ikkinchi muddatda 90 ming tupda – 22,3 sm, 100 ming tupda – 23,1 sm, 110 ming tupda – 24,6 sm, uchinchi muddatda esa mos ravishda 22,6-24,3-23,8 sm ni tashkil etganligi aniqlandi.

"Massino" navi ro'vagi konussimon egilgan, murakkab shaklda bo'lib, doni yuqoriga qarab ochiq holda emas, balki egilgan barglar to'sgan holda to'p bo'lib joylashadi. Bu esa donni qushlar tomonidan asos payhon etilishiga to'sqinlik qiladi. Andoza navida esa buning aksi kuzatiladi. Andoza navida ro'vak uzunligi 27,0-29,0 sm ni tashkil etib, ekish muddati, o'simlik soni ekish muddatiga bevosita bog'liq emasligi aniqlandi.

"Massino" navida ham shunday qonuniyat kuzatildi. Ro'vak uzunligi asosan hosildorlik elementlarini shakllanishiga hamda o'rim-yig'im paytida rol o'ynab, "Massino" navi o'rtacha uzunligi bo'yicha kombayn yordamida o'rib olishga mos ekanligi aniqlandi.

Bir tupdagi barg soni o'rganilganda, andoza "O'zbekiston-5" navi barcha muddatlar va o'simlik qalinliklarida soni deyarli bir xil, ya'ni 10,6-11,8 dona, "Massino" navida esa 15,8-17,7 donani tashkil etdi. "Massino" navida barg soni ko'p bo'lishi, silos massa tayyorlashda eng maqbul bo'lib, silosni chorva hayvonlari tomonidan suyub iste'mol qilinishiga, nishxort chiqarmaslikka olib kelishi ham ijobiy omillardan hisoblanadi.

Don jo'xori navlarini o'sishi, rivojlanishi va ayrim morfologik ko'rsatkichlariga agroomillar ta'siri

Var- iant	Ekish muddati	Ko'c hat qalin	Ekish sxemasi	O'simlik bo'yi, sm	Barg soni, dona	Ro'v ak uzun	Bo'g 'im	Bir inc hi
--------------	------------------	----------------------	------------------	--------------------	-----------------	--------------------	-------------	------------------

		-ligi, min g. dona .ga										-ligi, sm	soni, dona	bar gd an ro' va k ost i bo' g'i m ora si, sm
				ro‘v ak- lash	gulla sh	sut pishis h	pishis h	ro‘v ak- lash	gulla sh	sut pishi sh	to‘ liq pis his h			
Andoza “O‘zbekiston-5” navi														
1	I- muddat (10.04)	90	70x16- 1	164, 5	179,7	185,0	185,0	10,4	11,2	11,2	11, 2	27,5	12,2	11, 0
2		100	70x14- 1	166, 9	180, 2	187,1	187,3	10,2	11,2	11,2	11, 2	28,7	12,5	10, 2
3		110	70x13- 1	172, 4	186, 2	189,7	190,1	10,2	11,2	11,2	11, 2	28,5	12,2	11, 2
4	II- muddat (20.04)	90	70x16- 1	165, 7	180, 7	186,1	186,2	10,0	10,6	10,6	10, 6	27,0	12,6	12, 0
5		100	70x14- 1	167, 1	181, 2	187,7	187,9	10,4	11,2	11,2	11, 2	29,0	12,4	10, 0
6		110	70x13- 1	171, 4	187, 3	190,4	190,7	10,2	11,4	11,4	11, 4	29,0	12,3	14, 0
7	III- muddat (30.04)	90	70x16- 1	165, 7	180, 7	186,5	186,8	10,6	11,8	11,8	11, 8	29,0	12,8	15, 0
8		100	70x14- 1	171, 6	185, 4	189,2	189,4	10,4	11,3	11,3	11, 3	27,0	12,3	16, 0
9		110	70x13- 1	177, 4	187, 6	192,3	192,5	10,4	11,3	11,3	11, 3	27,0	12,3	13, 0
“Massino” navi														
1	I- muddat (10.04)	90	70x16- 1	114, 7	123, 4	125,2	125,3	16,2	17,0	17,0	17, 0	24,0	19,0	6,7
2		100	70x14- 1	117, 3	124, 6	127,0	127,1	16,4	17,7	17,7	17, 7	22,7	18,7	7,2

3		110	70x13-1	118,7	125,6	128,7	129,0	15,8	16,2	16,2	16,2	22,7	18,2	6,7
4	II-muddat (20.04)	90	70x16-1	115,2	123,7	126,6	126,8	15,8	16,2	16,2	16,2	22,3	18,2	7,0
5		100	70x14-1	118,6	125,7	129,0	129,1	15,5	16,7	16,7	16,7	23,1	18,6	7,0
6		110	70x13-1	122,3	129,4	133,8	134,2	15,2	16,2	16,2	16,2	24,6	18,2	7,0
7	III-muddat (30.04)	90	70x16-1	113,3	122,1	124,2	124,4	14,2	15,8	15,8	15,8	22,6	17,8	6,4
8		100	70x14-1	115,4	123,9	126,5	126,7	15,4	16,3	16,3	16,3	24,3	18,3	5,0
9		110	70x13-1	119,7	127,5	129,7	130,0	15,6	16,0	16,0	16,0	23,8	18,3	5,0

Shuningdek, "Massino" navining barg orqali sodir bo'ladigan fotosintez jarayonini intensiv o'tishi oqibatida, o'simlikda qand moddasi, quruq massa, protein miqdorini ortishiga olib keladi. "O'zbekiston-5" navida ro'vakni uzun hamda tik joylashishi bo'yicha amaliyot va laboratoriya tahlillari natijasida quyidagi ijobiy hamda salbiy tomonlari aniqlandi.

Ijobiy tomonlari:

- ro'vakni tik joylashishi yaxshi changlanishga o'sib rivojlanishiga, quyosh energiyasidan hamda shamol, turli hashoratlar yordamida yuqori darajada changlanishiga olib keladi;
- puch, yarim puch hamda yaroqsiz chiqindilar ro'vakda hosil bo'lmaydi;
- yog'ingarchilik, namlik yuqori darajada saqlanib qolmaydi;
- donlar ommaviy ravishda tez va tekis pishib yetiladi;
- o'simlik tup soni me'yorida ortib ketgan hollarda, ro'vaklar bir-biriga halaqit bermaydi va soya solmaydi;
- kuzgi yog'ingarchiliklardan ro'vaklar tez qurishi natijasida, ularni alohida o'rib olish imkoni tug'iladi.

Salbiy tomonlari:

- ro'vak uzun bo'lganligi, tik hamda barglardan ancha yuqorida joylashganligi sababli, doimo qushlarni galasi xujumiga uchrashi;
- bunday holatda donli ro'vak ustiga to'siq, to'rli va boshqa turdagi yopinchiqlar yopish imkoni hozircha yo'q darajada;
- shuning uchun urug'lik ro'vaklar qog'oz paket bilan himoya qilishga majbur bo'linadi;
- tadqiqotlarimiz tahliliga ko'ra, mahalliy qushlar donga keltirgan zarari 20-25 foizni tashkil etib, II-ekish muddati, ya'ni ularni polaponlarini intensiv boshqish muddatiga to'g'ri kelishi aniqlandi.
- agarda mintaqalararo qushlar galasi bo'lsa, II va III-ekish muddati davriga to'g'ri kelib, keltiradigan donga zarari 30-40 foiz, hattoki butunlay payxon bo'lishi mumkin.
- shuning uchun hamda donning texnik sifat ko'rsatkichlari yuqori darajada bo'lganligi uchun asosiy urug'lik fondini tayyorlash uchun I-ekish muddati tavsiya etilgan.

Hozirgi keskin iqlim o'zgarishi, Orol dengizi qurishi natijasida jo'xori asosan ekiladigan Orolbo'yi hududlarida kuchli shamollar esishi natijasida makkajo'xori dalalari ko'plab payhon bo'ladi. Jo'xori ekilgan maydonlarda esa deyarlik bunday holat kuzatilmaydi. Buning asosiy

sababi, jo'xorida biologik jihatidan makkajo'xoriga nisbatan deyarlik ikki barobargacha o'simlikni bo'g'im soni yuqori bo'ladi.

Jadval ma'lumotlarini ta'kidlashicha "Massino" navida andoza navga nisbatan 50 foizgacha bo'g'imlar soni ko'pligini ko'rsatmoqda.

Jo'xori o'simligininig shamolga bardoshliligini yuqori bo'lishining yana bir jihati, bo'g'imlar soni ko'p bo'lsa bosh poyani egilmasligi, shamol bo'lganda yotib kolmasligini oldini oladi va tayanch vazifasini bajaradi.

Andoza "O'zbekiston-5" navida poyadagi bo'g'imlar soni har bir ekilgan muddat va o'simlik qalinliklarida deyarli bir xil sonda bo'lishi, ya'ni 12,2-12,6 donani tashkil etishi aniqlandi. "Massino" navida esa birinchi muddat 90 ming tup o'simlik bo'lgan variantida 19 donani, uchinchi muddat huddi shu o'simlik qalinligida 17,8 donani, qolgan o'simlik qalinliklarida deyarli bir xil ekanligi aniqlandi.

Uchinchi muddatda ekilgan variantda o'simlikni rivojlanish davri boshida kunlarni o'ta isib ketishi va rivojlanishning so'nggi davrlarida iqlimni pasayib borishi, ya'ni ekinni tezroq avlod qoldirish "stress" jarayoniga o'tishi hisobiga bo'g'imlar sonini kamayishiga olib kelishi aniqlandi.

Shuni ta'kidlash lozimki, don hosilini mexanizatsiya yordamida o'rib olishni tashkil etishda, ro'vak osti bilan birinchi barg orasidagi oraliq masofasi juda muhim o'rin egallaydi. Agar ro'vak osti va birinchi barggacha bo'lgan masofa 10 smdan uzun bo'lsa, ro'vakni yig'ishtirib olish davrida ko'p miqdorda ro'vak hosili massasiga poya qismini tushishiga olib keladi. Agar 5 smdan kam bo'lsa, unda yashil massa qismini donli ro'vakni ko'p qismi aralashib ketishiga olib keladi. Andoza "O'zbekiston-5" navida bu ko'rsatkich barcha variantlarda 10,0-16,0 smni tashkil qilgan bo'lsa, yangi yaratilgan "Massino" navida esa 5,0-7,0 sm oralig'ini tashkil etishi aniqlandi. Yuqorida andoza nav bilan solishtirib o'rganilgan "Massino" navini o'simlik bo'yini pastligi, ro'vak bilan birinchi barg orasidagi masofa 5-7 sm ni tashkil etishi, bemalol ishchi kuchini kamaytirgan holda mexanizatsiya yordamida hosilni yig'ishtirib olishga imkoniyat yaratilishi aniqlandi.

Shuning bilan birga, ushbu navni chorva hayvonlari uchun to'yimli, bargi ko'p, shirali silos ozuqa tayyorlashga foydalanish tavsiya etiladi. Bu esa ayniqsa kechki muddatlarda ekilgan, katta maydonlarda yetishtirilgan hosilni nes-nobud qilmay o'rib-yig'ib olishda yuqori samarali hisoblanishi aniqlandi.

Andoza navidagi bo'g'imlar soni barg soniga nisbatan o'rtacha 1 donaga, "Massino" navida esa 2-3 donaga yuqori farqlanishi aniqlandi.

Xulosa

"Massino" navi o'simligi juda baland emasligi, nisbatan o'simlik shakli ixchamligi, serbargligi va bo'g'imlarga ega bo'lishi hamda ularni vegetatsiya davrini uzoqroq davom etishi hisobiga hosil elementlarini ko'proq shakllanishiga va yuqori hosildorlikka erishishiga imkoniyat yaratilishi aniqlandi. Shuningdek, 11,54-12,05 t/ga qimmatli ozuqa, yem-xashak olishga xizmat qiladi.

FOYDALANILGAN ADABIYOTLAR

1. O'zbekiston Respublikasi Prezidentining 2022 yil 8 fevraldagi PQ-120-son "O'zbekiston Respublikasida chorvachilik sohasi va uning tarmoqlarini rivojlantirish bo'yicha 2022-2026 yillarga mo'ljallangan dasturni tasdiqlash to'g'risida" gi Qarori.
2. Dospexov B.A. "Metodika polevogo opyta". M.: Agropromizdat.-1985. S. 347.

3. Lebedov P.T., Usovich A.T. “Методы исследования кормов, органов и тканей животных”. Москва: Россельхозиздат.-1976. S. 389.
4. Nurmatov Sh., va boshqalar. Dala tajribalarini o'tkazish uslublari. // Toshkent-2007. B 8-51.
5. Polojij V.N. Hosilni yetishtirish uchun sarflangan harajatlar. // Toshkent. 1976. S. 15-33.
6. Teshayev Sh.J., va boshqalar, “Qishloq xo'jaligi ekinlarini parvarishlash va mahsulot yetishtirish bo'yicha namunaviy texnologik kartalar 2016-2020 yillar uchun” // Toshkent 2016, II – qism B. 84-87.
7. Nichiporovich A.A. O putyax povыsheniya produktivnosti fotosinteza rasteniy v posevax. V kn. Fotosintez i voprosy produktivnosti rasteniy. – M.: “Nauka”, 1963. S. 5 – 53.
8. Oripov R.O, N.X. Xalilov. «O'simlikshunoslik» O'simliklar faylasuflari milliy nashriyoti «Toshkent – 2007» S. 245-248.
9. Nazarenko K., sostaviteli “Методы определения массовых химических анализ селскохозяйственных культур”. Z.Ya.Leyn, B.M.Rayxman i dr. (Moskva, A-8, Listvennichnaya alleya, 6).
10. Alabushev A.V., Sorgho (seleksiya, semenovodstvo, texnologiya, ekonomika) / A.V. Alabushev, L.N.Antipenko, N.G.Gurskiy, N.Ya.Kolomies, P.I. Kostыchev, P.A.Mangush, O.I.Alabusheva – Rostov-na-Donu: ZAO Kniga, 2003. S. 368.
11. By Dr Joseph Eyre, Adam Sparks, Melina Miles, Prof Mike Bell and Prof Daniel Rodriguez. Consider soil water orage before sowing a sorghum crop 2020. P. 18-25.
12. Billy E. Warrick (Retired) Professor and Extension Agronomi How a Sorghum Plant Develops 2019. P. 64-74.
13. Dilys S. maccarthy. L.g. Vlek Impact of climate change on sorghum production under different nutrient and crop residue management in semi-arid region of ghana: a modeling perspective 2012. P. 35-41.
14. Dera J., M.Mativavarira., “Effect of Sowing Date and Variety on Sorghum Yield in Different Regions of Zimbabwe” ScholArena [Oshibka! Nedopustimyy ob'ekt giperssylki.](#), SCHOLARENA Journal of Advancements in Plant Science. September 2018. P. 1-6.
15. Eain I.D. Water and temperature effects on sorghum and millet as related to grain production and breeding. Annu. Rep-Sorghum-millet collaborative research support program. 1988. P.48-54.
16. Freeman K.C. Sweet Sorghum Culture and Sirup Production / Freeman K.C., Broadhead D.M., Zummo N.// Agricultural Research Service, U.S. Depart-ment of Agriculture, Meridian, Miss. and F. E. Webrook, agronomi. Extension Service, U.S. Department of Agriculture, Washington, D.C. Agriculture Handbook Number 611. - 1986. R. 53.

Veb-saytlar

17. <https://cyberleninka.ru/article/n/takroriy-ekinda-makkajo-xori-duragaylarining-ko-chat-qalinligining-o-simlik-rivojlanishiga-ta-siri>
18. <https://uz.wikipedia.org/wiki/Makkajo%CA%BBxori>
19. <https://www.researchgate.net/publication/360588474>
20. <https://www.youtube.com › watch>

ONA TILI VA ADABIYOT DARSLARIDA GURUHLI LOYIHA ISHLARINING
O'QUVCHILAR FAOLLIGIGA TA'SIRI

Aralova Matluba Qodir qizi

Samarqand davlat pedagogika instituti magistranti

Annotatsiya. Maqolada ona tili va adabiyot darslarida guruhli loyiha ishlarining o'quvchilar faolligiga ta'siri nazariy jihatdan tahlil qilinadi. Johnson va Johnsonning kooperativ ta'lim nazariyasi, Dale ning "tajriba konusi" modeli va Tuckman ning guruh rivojlanish bosqichlari nazariyasi asosida guruhli loyiha ishlarining o'quvchi faolligini oshirish mexanizmlari o'rganilgan. Qiyosiy tahlil individual topshiriqlar va guruhli loyiha ishlari o'rtasidagi farqlarni 5 ta kooperativ ta'lim elementi bo'yicha aniq ko'rsatib berdi. Tadqiqot natijalari guruhli loyiha ishlarining o'quvchi faolligini oshirishda individual topshiriqlarga nisbatan sezilarli ustunlikka ega ekanligini nazariy jihatdan asoslab beradi.

Kalit so'zlar: guruhli loyiha, o'quvchi faolligi, kooperativ ta'lim, tajriba konusi, ona tili, adabiyot, jamoaviy ishlash.

Аннотация. В статье теоретически анализируется влияние групповой проектной работы на активность студентов на занятиях по родному языку и литературе. На основе теории кооперативного обучения Джонсона и Джонсона, модели «конуса опыта» Дейла и теории стадий развития группы Такмана изучаются механизмы повышения активности студентов при групповой проектной работе. Сравнительный анализ четко показал различия между индивидуальными заданиями и групповой проектной работой по 5 элементам кооперативного обучения. Результаты исследования теоретически обосновывают тот факт, что групповая проектная работа имеет значительное преимущество перед индивидуальными заданиями в повышении активности студентов.

Ключевые слова: групповой проект, активность студентов, кооперативное обучение, конус опыта, родной язык, литература, командная работа.

Abstract. The article theoretically analyzes the impact of group project work on student activity in native language and literature classes. Based on Johnson and Johnson's cooperative learning theory, Dale's "cone of experience" model, and Tuckman's theory of group development stages, the mechanisms of increasing student activity in group project work are studied. Comparative analysis clearly showed the differences between individual assignments and group project work in 5 elements of cooperative learning. The results of the study theoretically substantiate the fact that group project work has a significant advantage over individual assignments in increasing student activity.

Keywords: group project, student activity, cooperative learning, cone of experience, native language, literature, teamwork.

KIRISH

O'quvchi faolligi zamonaviy ta'lim pedagogikasining markaziy tushunchalaridan biri hisoblanadi. Edgar Dale (1969) ning mashhur "tajriba konusi" (Cone of Experience) modeli o'quvchi faolligining o'rganish samaradorligiga bevosita ta'sirini aniq ko'rsatib bergan. Bu modelga ko'ra, o'quvchi passiv tinglaganda materialni atigi 10–20% o'zlashtiradi. O'qigan materialning 30%, ko'rgazmali materialning 50%, muhokama qilgan materialining 70%, real tajriba orqali o'rgangan materialining 90% gacha esda qoladi. Bu nazariy model ta'lim jarayonida o'quvchini imkon qadar faol ishtirokchi sifatida jalb etish zarurligini asoslab beradi.

Guruhli ishlash o'quvchi faolligini oshirishning eng samarali vositalaridan biri sifatida pedagogik adabiyotda keng e'tirof etilgan. David Johnson va Roger Johnson (1999) ning kooperativ ta'lim nazariyasi guruhli ishlashning beshta asosiy elementini aniqlagan: ijobiy o'zaro bog'liqlik, shaxsiy javobgarlik, yuzma-yuz muloqot, ijtimoiy ko'nikmalar va guruh jarayonini tahlil qilish. Bu elementlarning har biri o'quvchi faolligining turli jihatlarini rivojlantiradi.

Robert Slavin (1995) ning kooperativ ta'lim tadqiqotlari guruhli ishlashning akademik natijalar, o'quvchilar o'rtasidagi munosabatlar va o'z-o'zini hurmat qilish hissiga ijobiy ta'sir ko'rsatishini isbotlagan. Slavinning ta'kidlashicha, guruhli ishlash ikki muhim shart bajarilganda samarali bo'ladi: guruh maqsadi (group goals) va shaxsiy javobgarlik (individual accountability).

Loyihaviy ta'lim kontekstida guruhli ishlash alohida ahamiyat kasb etadi. Loyiha tabiatan jamoaviy faoliyatdir: u bitta shaxsning kuchi bilan emas, balki bir necha kishining hamkorlikdagi sa'y-harakati bilan amalga oshadi. Krajcik va Shin (2014) ta'kidlaganidek, loyihaviy ta'limda guruh a'zolari turli vazifalarni o'z zimmasiga olib, umumiy maqsadga erishish uchun hamkorlikda ishlaydi. Bu jarayon nafaqat akademik bilimlarni, balki XXI asr ko'nikmalarini – kommunikatsiya, hamkorlik, tanqidiy fikrlash, ijodkorlik – rivojlantiradi.

Ona tili va adabiyot fanlari guruhli loyiha ishlari uchun alohida imkoniyatlarga ega. Sinf gazetasi yaratish, she'riy to'plam nashr etish, nutq tadqiqoti o'tkazish, adabiy asar sahnalashtirish, lug'at tuzish kabi loyihalar tabiatan guruhli faoliyatni talab qiladi. Bu faoliyatlar o'quvchilarning og'zaki va yozma nutq ko'nikmalarini, muloqotga kirishish qobiliyatini va jamoaviy ishlash madaniyatini bir vaqtda rivojlantiradi.

O'zbekiston kontekstida guruhli loyiha ishlarining o'quvchilar faolligiga ta'siri maxsus tadqiqot ob'ekti sifatida yetarli darajada o'rganilmagan. Bu esa mazkur tadqiqotning dolzarbligini belgilaydi.

Tadqiqotning maqsadi – ona tili va adabiyot darslarida guruhli loyiha ishlarining o'quvchilar faolligiga ta'sirini nazariy jihatdan asoslab berish.

TADQIQOT METODOLOGIYASI

Tadqiqotda nazariy tahlil, qiyosiy tahlil va modellash usullaridan foydalanildi. Nazariy tahlil doirasida kooperativ ta'lim, guruhli ishlash va loyihaviy ta'limga oid xalqaro va milliy ilmiy adabiyotlar o'rganildi.

Tahlil uchun asosiy nazariy baza: 1) Johnson va Johnsonning kooperativ ta'lim nazariyasi (1999); 2) Slavinning kooperativ ta'lim modeli (1995); 3) Dale ning "tajriba konusi" modeli (1969); 4) Tuckman ning guruh rivojlanish bosqichlari nazariyasi (1965); 5) Vigotskiyning "yaqin rivojlanish zonasi" konsepsiyasi (1978).

Qiyosiy tahlil uchun individual topshiriqlar va guruhli loyiha ishlari Johnson va Johnsonning beshta kooperativ ta'lim elementi bo'yicha taqqoslandi. Shuningdek, Dale modeliga asoslanib faollik darajalari va o'zlashtirish ko'rsatkichlari taqqoslandi.

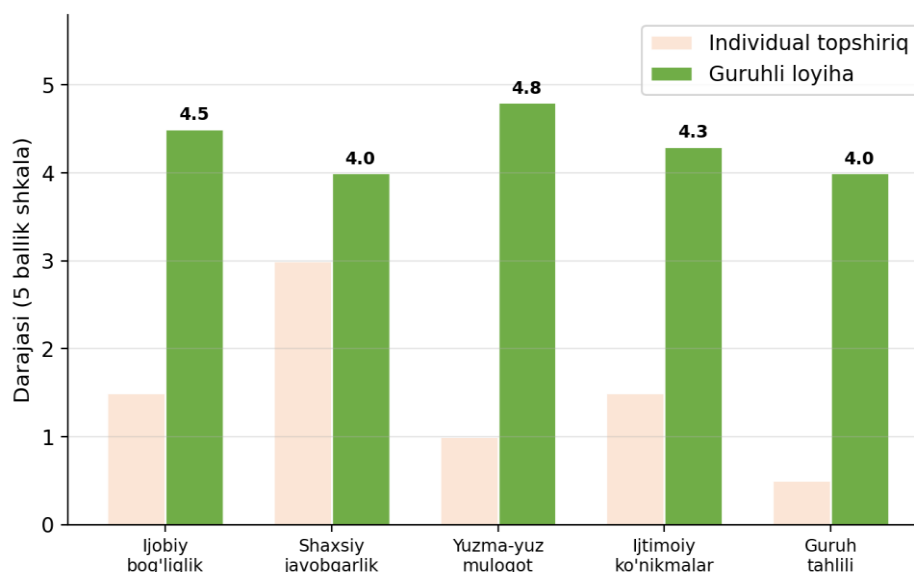
NAZARIY TAHLIL NATIJALARI

Kooperativ ta'lim elementlari va guruhli loyiha ishlari. Johnson va Johnson (1999) ning beshta elementi guruhli loyiha ishlarida quyidagicha namoyon bo'ladi:

1-jadval

Kooperativ ta'lim elementlarining guruhli loyihada namoyon bo'lishi

Element	Ta'rif	Guruhli loyihada	Individual topsh.
Ijoiy bog'liqlik	Guruh a'zolari bir-biriga bog'liq	Vazifalar taqsimlangan, har kim kerak	Bog'liqlik yo'q
Shaxsiy javobgarlik	Har bir a'zo javobgar	Har kim o'z vazifasi uchun javob beradi	Faqat o'z bahosi uchun
Yuzma-yuz muloqot	Bevosita muloqot	Muhokama, muzokara, fikr almashish	Muloqot minimal
Ijtimoiy ko'nikmalar	Hamkorlik madaniyati	Tinglash, hurmat, kompromiss	Rivojlanmaydi
Guruh tahlili	Jarayonni baholash	Refleksiya, nima yaxshi/yomon bo'ldi	Mavjud emas



1-chizma. Kooperativ ta'lim elementlarining individual va guruhli loyiha ishlarida namoyon bo'lishi

1-jadval va 1-chizmadan ko'rinib turibdiki, kooperativ ta'limning barcha beshta elementi guruhli loyiha ishlarida to'liq namoyon bo'ladi, individual topshiriqlarda esa faqat qisman (shaxsiy javobgarlik) yoki umuman namoyon bo'lmaydi. Bu nazariy tahlil guruhli loyiha ishlarining o'quvchi faolligini oshirishdagi ustunligini aniq ko'rsatib beradi.

Dale ning "tajriba konusi" modeli va o'quvchi faolligi. Dale (1969) ning modeliga ko'ra, ta'lim faoliyatlarini passivdan faolagacha quyidagi ierarxiya bo'yicha joylashtirish mumkin:

2-jadval.

Dale modeli bo'yicha ta'lim faoliyatlari tahlili

Faoliyat turi	O'zlashtirish (%)	An'anaviy darsda	Guruhli loyihada
O'qish	10%	Asosiy usul	Qo'shimcha
Tinglash (ma'ruza)	20%	Asosiy usul	Kam
Ko'rgazmali material	30%	Qisman	Qo'llaniladi
Namoyish ko'rish	50%	Kam	Qo'llaniladi
Muhokama, taqdimot	70%	Kam	Asosiy usul
Real tajriba, yaratish	90%	Deyarli yo'q	Asosiy usul

2-jadvaldan ko'rinib turibdiki, an'anaviy darsda asosiy faoliyatlar o'qish va tinglash (10–20% o'zlashtirish) bo'lsa, guruhli loyihada asosiy faoliyatlar muhokama, taqdimot va real tajriba (70–90% o'zlashtirish) hisoblanadi. Bu 4–9 baravar farqni tashkil etadi.

Tuckman ning guruh rivojlanish bosqichlari. Bruce Tuckman (1965) guruh rivojlanishining to'rtta bosqichini aniqlagan: shakllanish (forming), ziddiyat (storming), normalashuv (norming) va samarali ishlash (performing). Loyihaviy faoliyatda bu bosqichlar tabiiy ravishda kuzatiladi. Dastlabki loyihalarda guruh a'zolari bir-birini taniydi va vazifalarni taqsimlaydi (shakllanish). Keyingi bosqichda fikr farqlari va ziddiyatlar yuzaga keladi (ziddiyat). Uchinchi bosqichda guruh ish qoidalari va normalarini ishlab chiqadi (normalashuv). Nihoyat, to'rtinchi bosqichda guruh samarali va uyg'un tarzda ishlaydi (samarali ishlash).

Bu nazariy model loyihaviy ta'limda guruhli ishlashning birinchi darslardayoq mukammal bo'lmashligini, vaqt o'tishi bilan samaradorlik oshib borishini tushuntiradi.

Vigotskiyning ZPD nazariyasi va guruhli ishlash. Vigotskiy (1978) ning "yaqin rivojlanish zonasi" konsepsiyasi guruhli loyiha ishlarining samaradorligini tushuntirishda muhim rol o'ynaydi. ZPD ga ko'ra,

o'quvchi mustaqil bajara olmaydigan, lekin kattalar yoki yuqori darajali tengdoshlarning yordamida bajara oladigan topshiriqlar uning rivojlanishini eng samarali tarzda ta'minlaydi. Guruhli loyiha ishlarida bu mexanizm tabiiy ravishda amalga oshadi: yuqori darajali o'quvchilar past darajali tengdoshlariga yordam beradi, tushuntiradi, yo'naltiradi. Bu jarayondan ikkala tomon ham foyda ko'radi: past darajali o'quvchi yangi bilim va ko'nikmalar o'rganadi, yuqori darajali o'quvchi esa bilimni mustahkamlaydi va o'qitish ko'nikmalarini rivojlantiradi.

MUHOKAMA

Nazariy tahlil natijalari guruhli loyiha ishlarining o'quvchilar faolligiga ta'sirini bir necha jihatdan asoslab berdi. Birinchidan, Johnson va Johnson (1999) ning kooperativ ta'lim elementlari guruhli loyiha ishlarida to'liq namoyon bo'ladi, individual topshiriqlarda esa faqat qisman. Bu guruhli loyihaning o'quvchi faolligini oshirishdagi hal qiluvchi rolini tasdiqlaydi.

Ikkinchidan, Dale (1969) ning "tajriba konusi" modeli asosida, guruhli loyihada o'quvchi faol ishtirok etish (muhoqama, taqdimot, yaratish) zonasida bo'ladi va materialni 70–90% gacha o'zlashtiradi. An'anaviy darsda esa o'quvchi asosan passiv zonada (tinglash, o'qish) qoladi va materialni 10–20% o'zlashtiradi. Bu 4–9 baravar farqni tashkil etadi.

Uchinchidan, Tuckman (1965) ning guruh rivojlanish bosqichlari nazariyasi guruhli ishlashning vaqt o'tishi bilan samaraliroq bo'lib borishini tushuntiradi. Bu o'qituvchilarga birinchi loyihalarda sabrli bo'lish va guruhga shakllanish uchun vaqt berish zarurligini ko'rsatadi.

To'rtinchidan, Vigotskiy (1978) ning ZPD nazariyasi guruhli loyihada turli darajali o'quvchilarning bir-biriga ijobiy ta'sir ko'rsatishini izohlaydi. Bu loyihaviy ta'limning inkluziv tabiatini – barcha darajadagi o'quvchilarga foyda keltirishini – asoslab beradi.

Ona tili va adabiyot fanlari guruhli loyiha ishlari uchun alohida qulay muhit yaratadi. Sinf gazetasi yaratishda muxbir, muharrir, dizayner, fotograf rollari tabiiy ravishda taqsimlanadi. She'riy to'plam nashr etishda har bir o'quvchi o'z she'rini yozadi, guruh esa tanlash, tahrirlash va dizayn vazifalarini bajaradi. Nutq tadqiqotida intervyu olish, ma'lumot qayta ishlash, hisobot yozish vazifalari guruh a'zolari o'rtasida taqsimlanadi.

Tadqiqot cheklanishlari: nazariy tahlil amaliy tadqiqot bilan to'ldirilishi kerak. Kelgusida kvazi-eksperimental dizayn asosida guruhli loyiha ishlarining o'quvchi faolligiga ta'sirini miqdoriy o'lchash tavsiya etiladi.

XULOSA

Tadqiqot ona tili va adabiyot darslarida guruhli loyiha ishlarining o'quvchilar faolligiga ijobiy ta'sir ko'rsatishini nazariy jihatdan asoslab berdi. Asosiy xulosalar: 1) kooperativ ta'limning barcha beshta elementi guruhli loyiha ishlarida to'liq namoyon bo'ladi; 2) Dale ning "tajriba konusi" modeliga ko'ra, guruhli loyihada o'zlashtirish darajasi an'anaviy darsga nisbatan 4–9 marta yuqori; 3) Tuckman modeli guruhli ishlashning bosqichma-bosqich samaraliroq bo'lib borishini tushuntiradi; 4) Vigotskiy ZPD nazariyasi guruhli loyihaning barcha darajadagi o'quvchilarga foydali ekanligini asoslaydi; 5) ona tili va adabiyot fanlari guruhli loyiha ishlari uchun eng qulay fanlar hisoblanadi.

FOYDALANILGAN ADABIYOTLAR RO'YXATI:

1. Johnson, D.W., Johnson, R.T. (1999). Learning Together and Alone. Allyn & Bacon.
2. Dale, E. (1969). Audiovisual Methods in Teaching. Dryden Press.
3. Slavin, R.E. (1995). Cooperative Learning. Boston: Allyn & Bacon.
4. Tuckman, B.W. (1965). Developmental sequence in small groups. Psychological Bulletin, 63(6).
5. Vygotsky, L.S. (1978). Mind in Society. Harvard University Press.
6. Krajcik, J.S., Shin, N. (2014). Project-Based Learning. Cambridge Handbook.
7. Thomas, J.W. (2000). A Review of Research on PBL. Autodesk Foundation.
8. Polat, E.S. (2010). Novye pedagogicheskie tekhnologii. Moskva.
9. Dewey, J. (1938). Experience and Education. New York: Macmillan.
10. Kilpatrick, W.H. (1918). The Project Method. Teachers College Record, 19(4).
11. Robinson, K. (2011). Out of Our Minds. Capstone Publishing.

12. Blumenfeld, P.C. et al. (1991). Motivating PBL. Educational Psychologist.
13. Qodirov, P. (2015). Ona tili ta'limi metodikasi. Toshkent.
14. Yo'ldoshev, J.G'. (2005). Pedagogik texnologiyalar. Toshkent.
15. Nurmonov, A. (2012). O'zbek tilshunosligiga kirish. Toshkent.
16. Matchanova, Z. (2019). Loyihaviy ta'lim texnologiyalari. Toshkent.



**ОЦЕНКА ВЛИЯНИЯ ПОВЕДЕНИЯ ТОП-МЕНЕДЖМЕНТА НА
УСТОЙЧИВОСТЬ КОМПАНИИ****Ан Кирилл****ТМУК, преподаватель кафедры «Менеджмент и маркетинг»**

На сегодняшний день, когда речь заходит об устойчивости и долгосрочном успехе компании принято вспоминать самые разные факторы: стратегия предприятия, её бизнес-модель, факторы критического успеха, и даже штат сотрудников. И хотя важность сотрудников в достижении успеха той или иной компании не подлежит сомнению, не стоит забывать, что руководство, то есть топ-менеджмент компании также играет крайне важную роль. И речь не только профессиональных навыков или возможности предугадывать тенденции в той или иной сфере, а скорее о влиянии поведения руководства. Принимаемые топ-менеджментом решения о количестве ресурсов, затрачиваемых на представительские расходы, или предоставление так называемых «золотых парашютов» для генеральных директоров, все это также оказывает влияние на то, насколько успешна будет компания или она и вовсе обанкротится. Долгосрочный успех предприятия и тем более его устойчивость крайне чувствительны к принимаемым руководством решениям, потому как они в значительной степени формируют образ компании в глазах всех заинтересованных сторон, а также определяют то, на какие направления предприятие затрачивает свои финансовые ресурсы.

Принято считать, что разрыв в благосостоянии руководства и сотрудников, а также доступ к различным привилегиям, таким как мраморные столовые, личные бизнес джеты и предоставление эксклюзивных билетов на различные мероприятия вполне естественно по самым разным причинам, однако в конечном итоге это приводит к дистанцированию власти, непониманию текущей конъюнктуры на рынке, на котором и работает предприятие. Непонимание важности влияния поведения руководства в конечном итоге нередко может привести к банкротству и закрытию компании.

В первую очередь стоит определить - что есть устойчивость, и лишь затем оценивать влияние на него поведения топ-менеджмента. Итак, под устойчивостью чаще всего понимают введение бизнеса таким образом, что это не вредит окружающей среде, но что еще важнее – оставляет возможность продолжать работу и жизнедеятельность следующим поколениям. В этой статье под устойчивостью понимается способность компании вести бизнес таким образом, что следующее поколение сотрудников, в том числе и высшее руководство не будет сталкиваться с большим количеством трудностей в силу плохого менеджмента предыдущих поколений. То есть, рассматривая влияние поведения топ-менеджмента, будет оцениваться в первую очередь то, как принимаемые им решения сказываются на долгосрочном росте компании, к чему в конечном итоге приведут.

Отдельного внимания заслуживает сравнение подходов Wells Fargo и Bank of Amerika. Сразу после отмены государственного регулирования банковской сферы, генеральный директор Wells Fargo – Карл Рейхард стремился поддерживать рост стоимости ценных бумаг своей компании и стабильно высоких финансовых показателей. В противовес Bank of Amerika, которые стремились сохранить привилегии руководства, и по мнению некоторых исследователей, именно подобные решению сказались крайне негативно на дальнейшем состоянии этого банка. Глава банка, даже в те непростые для всей банковской

системы имел в своем распоряжении кабинет внушительных размеров с большим залом для заседаний, восточными коврами и панорамными окнами, откуда открывался вид на залив Сан-Франциско. Доступ к этому кабинету, располагавшемуся на одном из верхних этажей здания не останавливался ни на каком этаже кроме первого и последнего – офиса директора. Топ-менеджмент Bank of America имел в своем распоряжении дорогие машины, персональную отделанную мрамором столовую, гольф площадки и тому подобное. Карл Рейхард из Wells Fargo, как уже упоминалось выше, выбрал совершенно иной подход. Выплата зарплаты высшего руководство Wells Fargo, в том числе и самого директора была приостановлена на два года, отдельная столовая для руководства также была закрыта, и компания заключила договор с предприятием, которое обычно занималось снабжением студенческих столовых. И в то время, пока акции Bank of America стремительно падали в цене, Wells Fargo удалось пережить тяжелый период и продолжать показывать стабильно высокие результаты в своей отрасли. В то время, когда доходность по акциям банковской отрасли была на 59 % ниже средней по рынку, доходность по акциям Wells Fargo превосходила рынок более, чем в 3 раза.

Поведение топ-менеджмента компании как то, что было описано выше зачастую приводит к возникновению дистанции власти. Дистанция власти, то есть намеренное создание разрыва между простыми сотрудниками и топ-менеджментом практически всегда приводит к отрицательным результатам. Порой, одним из эффектов подобной практики становится абсолютное непонимание текущей ситуации на рынке, на которой компания ведет свою деятельность. В качестве примера можно привести компании Electronic Arts и Ubisoft. Обе организации являются крупными международными компаниями и лидерами в игровой индустрии. Как первая, так и вторая компания являются правообладателями крайне успешных однопользовательских компьютерных игр. Однако за последние несколько десятилетий в высшем руководстве обеих компаний произошли изменения и переориентацию компаний на многопользовательские и онлайн игры, что в конечном итоге привело к тому, что финансовые показатели обеих компаний крайне слабые. Генеральный директор Ubisoft – Ив Гиймо неоднократно заявлял о трудной финансовой ситуации, и утверждал, что компания рассмотрит любые предложения о поглощении. Большинство независимых исследователей отмечают стремление топ-менеджмента обеих предприятий к постоянному обогащению и получение все более значительных привилегий.

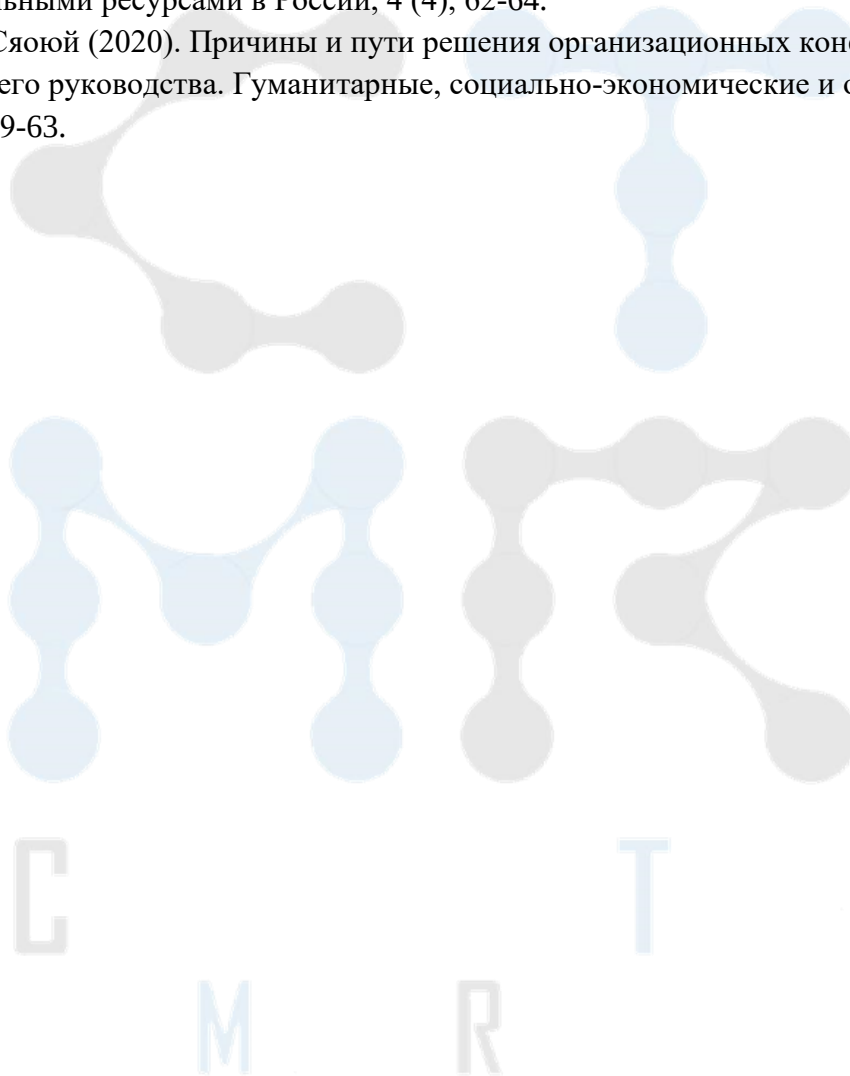
Также следует помнить, что дистанция власти оказывает весьма существенное негативное влияние на мотивацию и моральное состояние персонала. Отстраненность высшего руководства, наличие слишком большой разницы в положении директоров и рядовых сотрудников компании не может оказать никакого положительного эффекта, так как из-за этого разрыва сотрудники не чувствуют свою важность, скорее наоборот, видя привилегии, которыми пользуется топ-менеджмент, особенно если все предприятие в это же самое время находится в кризисной ситуации, как это например было в Bank of America, может привести к тому, что мотивация и групповая сплоченность коллектива наоборот сильно упадет, что в свою очередь, только усугубит положение дел в организации.

В целом, поведение топ-менеджмента может крайне сильно повлиять на долгосрочное развитие компании и её устойчивость, что можно было видеть в примере с Wells Fargo, где устранение дистанции власти привело к росту мотивации персонала, повысило сплоченность, и позволило Wells Fargo значительно опередить Bank of America. И наоборот, разрыв в благосостоянии и возможностях высшего руководства и простых

сотрудников может привести к отрицательным результатам. Даже если в краткосрочной перспективе это и может дать какой-то положительный эффект, как показывает практика компания теряет свою устойчивость и в долгосрочной перспективе проигрывает.

Список литературы

1. Duane Duffy, Industry Analysis Unit (не опубликовано), проект „От хорошего к великому“, лето 1998, анализ данных Центра исследования котировок ценных бумаг Чикагского Университета.
2. Маслова Валентина Михайловна (2015). Ключевые факторы, влияющие на эффективность работы персонала компании. Управление персоналом и интеллектуальными ресурсами в России, 4 (4), 62-64.
3. Тянь Сяюй (2020). Причины и пути решения организационных конфликтов внутри высшего руководства. Гуманитарные, социально-экономические и общественные науки, (10), 59-63.



MORPHOLOGICAL FEATURES OF CHRONIC INFECTIOUS AND INFLAMMATORY DISEASES OF THE CERVIX AT THE PRESENT STAGE**Khalilova Mekhriniso Tuymurodovna****Bukhara Medical Institute named after Abu Ali Ibn Sina.**

Abstract. A high recovery rate after one course of treatment and a relatively low relapse rate (associated with a change in sexual partner or the presence of a urogenital tract infection) make this drug recommended for the treatment of cervicitis.

Keywords: chronic cervicitis, reproductive age, treatment

Relevance. Inflammatory diseases of the female reproductive tract are a common pathology, accounting for 60-65% of gynecological diseases (1,3,5,7,9). The relevance of cervicitis is also associated with its numerous negative consequences for women's reproductive health. Thus, chronic cervicitis (CC) can play a significant role in the development of cervical ectopia and dysplasia (2,4,6,8,10), leading to the development of inflammatory diseases of the uterus and appendages (IDUA), infertility, and miscarriage (1). The presence of CC is associated with a high risk of premature birth, intrauterine infection of the fetus, and postpartum purulent-septic complications [14, 15]. Many fundamental studies have been devoted to the problem of CC (2,11,13). However, a number of issues remain unresolved. Thus, at the present stage, the range of etiological factors causing the development of chronic cervical cystitis requires clarification. Due to the fact that the radical socioeconomic changes that occurred worldwide at the end of the 20th century led to changes in sexual behavior patterns, the prevalence of sexually transmitted infections (STIs) has increased sharply. These infections are the main cause of inflammatory processes of the cervix (2,14). At the same time, the role of microbial associations and individual associates in the genesis of chronic cervical cystitis remains unclear, particularly the oncogenic types of human papillomavirus (HPV 16 and 18).

Despite the fact that the clinical and cytological manifestations of chronic cervical cystitis are known, and these diagnostic methods are considered screening methods, there is still no established clinical examination program for patients with this pathology. Furthermore, morphological criteria for objectively assessing the severity and dynamics of chronic cervical cystitis during treatment have not been developed. These criteria would allow for an assessment of the degree of lymphocytic infiltration, plasmatisation, and fibrosis of the exocervical and endocervical stroma in biopsy specimens. This creates a number of difficulties in treating patients with this condition. In light of the above, it is clear that further study of the etiology, clinical features, morphological, and immunohistochemical characteristics of chronic cervical cystitis is needed in order to develop a unified approach to diagnosing this condition and optimizing its treatment.

The objective of the study is to optimize the diagnosis and treatment of chronic cervical cystitis based on a comprehensive clinical and morphological characterization of this pathology in the current context.

Materials and methods. From 2021 to 2025, a comprehensive clinical and laboratory examination of 121 patients with chronic cystic cervix was conducted at the Kagan City Clinical Hospital in the Bukhara Region. Inclusion criteria for the study included the following: women of reproductive age, a histological diagnosis of chronic cystic cervix in cervical biopsy specimens,

identification of any infectious agent or microbial associations from the lesion (cervix), the absence of diseases leading to severe general immunodeficiency (blood diseases, cancer, HIV infection, etc.), and the absence of sexually transmitted diseases at the time of the study. This group of patients underwent an in-depth study of the causative factors, development mechanisms, and clinical manifestations of chronic cystic cervix. Exclusion criteria included pregnancy at any stage, antibacterial therapy within the last month, or the use of topical medications (vaginal tablets, creams, etc.).

Results and discussion. The first group consisted of 48 women (39.7%) who were diagnosed with pure chronic cervical cystitis during the examination. The second group included 57 patients (47.1%) with chronic cervical cystitis combined with cervical ectopy. The third group consisted of 16 patients (13.2%) with chronic cervical cystitis combined with grade 1 cervical insufficiency. The control group also included 32 healthy women whose cytological examination suggested chronic cervical cystitis, but whose histological examination of cervical biopsies revealed no abnormalities in the cervical mucosa. All women provided informed consent to participate in the study. Following a blinded clinical trial, all patients were divided into two groups based on the nature of the treatment. The study group consisted of 68 women (56.2%). These patients, along with the generally accepted treatment for chronic cystitis, received local therapy using the drug "Derinat".

The comparison group included 53 patients (43.8%) who received traditional therapy for CC (Rusakevich P.S., 2000; Bayramova G.R., 2000). It included josamycin at a dose of 0.5 g twice a day for 14 days for chlamydial, ureaplasma and mycoplasma infections, Viferon at a dose of 500 thousand IU per day rectally for 10 days. For bacterial vaginosis (BV), metronidazole was prescribed enterally at 0.25 g twice a day for 7 days, and for urogenital candidiasis - fluconazole 150 mg once. Local treatment included sanitation of the vagina and cervix with a 1% lactic acid solution. For herpes simplex virus infection of the cervix, acyclovir was prescribed at 0.2 g four times daily for 14 days, and Viferon at a dose of 1 million units was administered endovaginally once daily for 14 days. For chronic cervical cystitis associated with HPV, Viferon was administered at a dose of 1 million units twice daily for 10 days. The second stage was to restore normal intestinal and vaginal microflora. For this purpose, a liquid bifidobacteria concentrate was administered enterally at a dose of 5 ml daily for one month, and Acylact vaginal suppositories were taken at night for 10 days. All patients underwent a comprehensive examination, which included a general clinical and gynecological examination, vaginal fluid pH testing, bacterioscopic and bacteriological testing, polymerase chain reaction (PCR), immunocytochemistry, cytological examination of cervical smears, simple and extended colposcopy, and targeted cervical biopsy with subsequent histological examination. All patients underwent a pelvic ultrasound to rule out upper reproductive tract pathology. Microorganism identification was performed at the microbiology center of City Clinical Hospital No. 6 using bacterioscopic, culture, immunocytochemistry, and polymerase chain reaction (PCR) in all patients before and after treatment. We compiled a medical and social profile of 121 examined patients with chronic cystitis. The women's age ranged from 17 to 47 years, with an average age of 25.6 ± 1.2 years. The youngest patients were in Group 2 (CC + cervical ectopy), with an average age of 21.4 ± 0.9 years. The average age of patients in Group 1 ("pure" CC) was 24.1 ± 1.1 years, while in Group 3 (CC + CIN grade I) it was 31.4 ± 0.9 years.

Housewives and service industry workers predominated among the examined patients in all groups. It should be noted that no significant differences were found between the groups in terms

of educational level. Most patients had a moderate or high standard of living, were financially secure, and many were unemployed. In the study population, 41.3% of patients were smokers, including all women in Group 3. Approximately one-third of the examined patients had extragenital pathology, with gastrointestinal and hepatobiliary disorders predominating. 62% of women were married or had one regular sexual partner for two or more years. This figure was 78% in Group 1, 54% in Group 2, and 81% in Group 3. Moreover, 67.8% of the total number of patients reported having begun sexual activity before age 18. Of these, three-quarters were women in groups 2 and 3, with one in five of them practicing non-traditional forms of sexual intercourse. 91.7% of women reported using some form of contraception. However, this cannot be considered rational. For example, patients in groups 1 and 3 who preferred intrauterine contraception had a high rate of chronic inflammatory diseases of the uterus and appendages (CIUD). More than half (52.1%) of the women had a history of pregnancy and childbirth, slightly less than half (47.9%) were nulliparous, and 9.9% of them suffered from primary infertility. The high rate of spontaneous (16.5%) and induced (28.1%) abortions is noteworthy. It should be noted that women in group 3 had the highest number of abortions. Due to their relatively high educational level and hygiene standards, the vast majority of patients (81.0%) visited a gynecologist regularly (at least once a year). Of the women in Group 3, 75% had not been examined for more than a year and a half. Women in all three study groups were diagnosed with various gynecological diseases, with chronic pelvic inflammatory diseases in remission predominating (35.5%), occurring most frequently in Group 1 (64.6%) and Group 3 (25%) patients. One in four women reported colpitis, STIs, and menstrual irregularities, while one in five had various types of mastopathy. 48.7% of patients were asymptomatic, which is very important from an epidemiological perspective, as in this situation, women have no reason to seek medical care. 28.9% of patients complained of discharge from the genital tract, 23.9% of women of itching and burning in the vulva, and 15.7% of women of periodic pulling pain in the lower abdomen.

The spectrum of microorganisms causing chronic cervical cystitis was diverse. A single cervical infection was observed in 43.8% of the women examined. However, more than half of the patients had a combination of different microorganisms. Genital chlamydia was detected in 18.2%, mycoplasmosis in 15.7%, and ureaplasmosis in 8.3%. Cultures revealed diagnostic titers of urogenital mycoplasmas and ureaplasmas in all cases. All were sensitive to josamycin. Genital herpes was detected in a third of the patients, primarily in association with other microorganisms. HPV was diagnosed in 23.1% of the women examined. This suggests that viral pathogens play a significant role in the genesis of chronic cervical cystitis, consistent with published data ().

Conclusions. Chronic cervicitis is a collective clinical and morphological concept that includes inflammatory lesions of the cervix, associated to a large extent with mixed infection, often of viral genesis, characterized by complex changes in the exo- and endocervix in the form of a complex of inflammatory-dystrophic, adaptive, immunopathological, dysregenerative processes and accompanied by a violation of the reproductive health of women.

BIBLIOGRAPHY

1. Савельева И.В., Полянская И.Б. Возможности комбинированной терапии у больных бактериальным вагинозом в сочетании с кандидозным вульвовагинитом. Российский вестник акушера-гинеколога. 2016; 16; 3: 69-72. doi: 10.17116/rosakush201616369-72

2. Роговская С.И., Бебнева Т.Н. Доброкачественные заболевания шейки матки. В кн.: Шейка матки, влагалище, вульва. Руководство для практикующих врачей. Под ред. С.И. Роговской, Е.В. Липитовой. М.: Статус Презенс, 2014.
3. Руководство по амбулаторно-поликлинической помощи в акушерстве и гинекологии. Под ред. Радзинского В.Е. М.: ГЭОТАР-Медиа, 2015; 1054.
4. Khamdamova M.T., Zhaloldinova M.M., Khamdamov I.B. The state of nitric oxide in the blood serum of patients with cutaneous leishmaniasis // New Den Medicine. - Bukhara, 2023. - № 5 (55). - P. 638-643.
5. Khamdamova M.T., Zhaloldinova M.M., Khamdamov I.B. The value of ceruloplasmin and copper in the blood serum of women wearing copper-containing intrauterine devices // New Den Medicine. - Bukhara, 2023. - № 6 (56). - P. 2-7.
6. Khamdamova M.T., Khasanova M.T. Various mechanisms of pathogenesis of endometrial hyperplasia in postmenopausal women (literature review) // New Den Medicine. - Bukhara, 2023. - № 8 (58). - P. 103-107.
7. Khamdamova M.T., Akramova D.E. Genetic aspects of genital prolapse in women of reproductive age // New Den Medicine. - Bukhara, 2024. - № 2 (64). - P. 420-426.
8. Khamdamova M.T., Akramova D.E. Immediate and long-term results of surgical treatment of genital prolapse in elderly women // New Den Medicine. - Bukhara, 2025. - № 3 (77). - P. 201-207.
9. Khamdamova M.T., Akramova D.E. Efficiency of various methods of treatment of women with genital prolapse // News of dermatovenerology and reproductive health. - Tashkent, 2025. - № 2 (109). - P. 30-33.
10. Khamdamova M.T., Khasanova M.T. genetic mechanisms of development of endometrial hyperplastic processes in women in menopausal age // New Den Medicine. - Bukhara, 2025. - № 3 (77). - P. 207-211.
11. Khamdamova M.T., Khasanova M.T. Морфологические изменения эндометрия при гиперплазии // Новости дерматовенерологии и репродуктивного здоровья.-Ташкент.- 2025.- № 2 (109). - P. 12-14.
12. Khamdamova M.T., Umidova N.N. Генитальный эндометриоз – болезнь активных и деловых женщин // Новости дерматовенерологии и репродуктивного здоровья.-Ташкент.- 2025.- № 2 (109). - P. 33-14.
13. Khamdamova M.T., Akramova D.E. Генетические аспекты генитального пролапса у женщин репродуктивного возраста // New Den Medicine. - Bukhara, 2024. - № 2 (64). - P. 420-426.
14. Koreeva NV, Dobrokhotova YuE. The use of local cytokine therapy in obstetric and gynecological practice. Rossiyskiy Vestnik AkusheraGinekologa. 2018; 5: 13: 99-104.
15. Yakovleva S.V., Sidorenko S.V., Rafalsky V.V., Spichak T.V. Strategy and tactics of the rational use of antibiotics in outpatient practice: Russian practical guidelines. Presto Publishing House. 2018; P.121

АТЕРОСКЛЕРОЗ ПИЛАКЧАЛАРИ РИВОЖЛАНИШ ЖАРАЁНИДА ТЕМИР
МИКРОЭЛЕМЕНТИНИНГ АҲАМИЯТИ

С.К. Худайназаров
ALFRAGANUS UNIVERSITY
(Тошкент, Ўзбекистон)

Долзарблиги: Охирги вақтларда юрак-томир касалликлари ривожланишида дисэлементоз ҳолатининг ўрни кенг миқёсда ўрганилмоқда, нимага деганди макро- ва микроэлементлар юрак-томир тизимининг барча функцияларида иштирок этадиган фермент, гормонлар ва оксиллар таркибига киради. Юрак-томир тизим касалликлари ривожланиш механизмлари таркибида амалга ошадиган кимёвий реакцияларда иштирок этадиган микроэлементлар Қон таркибида ва бевосита ички аъзолар тўқимасида бўлганлигидан уларни ўрганиш муҳим ҳисобланади. Шунинг учун, биологик тўқималарнинг микроэлементли таркиби бўйича база яратиш кардиология соҳасида янги перспектив йўналиш ҳисобланади.. Томир эндотелийсини шикастланишга олиб келадиган, хужайралар мембранаси хусусиятларининг структур-функционал бузилиши ва оксидланиш жараёни билан боғлиқ микроэлементларнинг ўзаро муносабатини ўрганиш атеросклероз патогенезини тушиниш учун янги маълумотлар беради.

Мақсад: Атеросклероз пилакчалари ривожланиш жараёнида темир микроэлементининг аҳамиятини таҳлил қилиш.

Тадқиқот натижалари: Маълум бўлишича, томир патологияларнинг ривожланишида кимёвий элементлар дисбаланси муҳим ўрин эгаллайди. Микроэлементлардан асосан кальций ўрганилган, бошқа элементлар ҳақидаги маълумотлар бир-бирига қарама-қарши ҳолатда Шу билан бирга атеросклеротик пилакчанинг таркиби, ўлчамлари ва асоратлар ривожланишини белгилайдиган микроэлементлар масаласини ўрганиш муҳим ҳисобланади. Айниқса, пилакча таркибидаги кальциноз чўкмаларини консерватив ва жарроҳлик усули билан олиб ташлашда, уларнинг микроэлементли таркибини билиш шарт ҳисобланади. Шунинг учун, атеросклеротик пилакчалар таркибидаги кимёвий элементлар концентрацияси ва жойланишини аниқлаш мақсадида ўтказиладиган илмий

Темир. Қон ва тўқималардаги юқори миқдордаги темир юрак-томир тизими касалликларининг хавfli омили ҳисобланади. Атеросклероз патогенезида темирнинг ўрни, кислород фаол радикаллар пайдо бўлишини катализлайди, қоннинг липопротеинли фракциясини оксидлайди. Бундан ташқари, темир иммун жавобда қатнашиб, атеросклероз жараёнида қатнашадиган барча хужайраларга таъсир кўрсатади. Проявляғланишли ва противоявляғланишли функциясига эга макрофагларнинг артериялар деворида темирнинг лабил кўриниши таъсирида фаолияти пасаяди. Шу билан бирга, қондаги плазма ферритини билан хужайраичи лабил ферритиннинг бир-бири билан боғлиқлиги ўрганилмаган.

Тўқимада темир миқдорининг ошиши юрак-томир касалликлари хавfli омили ҳисобланади. Темир иммун тизим орқали атеросклероз жараёнида қатнашадиган хужайраларга салбий таъсир кўрсатади, макрофагларнинг проявляғланишли ва противоявляғланишни функциясини пасайтиради. Темирнинг атеросклеротик пилакчаларда тўпланиши икки валентли формасининг 3 валентликга айлана олмаслигига боғлиқ.

Хулосалар:

Тўқимада темир миқдорининг ошиши юрак-томир касалликлари хавфли омили ҳисобланади. Темир иммун тизим орқали атеросклероз жараёнида қатнашадиган ҳужайраларга салбий таъсир кўрсатади, макрофагларнинг прояслиғланишли ва противояллиғланишни функцисини пасайтиради. Темирнинг атеросклеротик пеилакчаларда тўпланиши икки валентли формасининг 3 валентликга айлана олмаслигига боғлиқ.



IMPROVING FISCAL MONITORING MECHANISMS FOR REDUCING HIDDEN RECEIPTS IN TRADE AND SERVICE SECTORS TO EXPAND THE LOCAL TAX BASE

Azamjonov Ulug'bek Usmonjon o'g'li

Public safety University of the Republic of Uzbekistan

Senior teacher of the Department of Economic Sciences, f.d.e.s (PhD)

ulugbekazamjonov1606@gmail.com

Abstract: this article develops an integrated fiscal monitoring mechanism for reducing hidden cash receipts in Uzbekistan's trade and service sectors while strengthening the local tax base. Using legal reforms, official payment statistics, and sectoral indicators for 2021-2025, the study demonstrates that NKT, terminal, QR, and receipt-discipline variables should be monitored as linked manifestations of a single commercial event rather than as isolated violations. The proposed mechanism combines event-level data integration, sector-sensitive risk scoring, territorial benchmarking, and proportionate enforcement responses, thereby improving local revenue mobilization without imposing unnecessarily high compliance costs on formally operating businesses.

Keywords: hidden receipts, fiscal monitoring, local budget revenues, trade and services, tax administration, cash registers, payment terminals, QR codes, noncash payments, shadow economy, Uzbekistan

Introduction

Across emerging fiscal systems, the reduction of hidden cash turnover has become inseparable from the sustainability of local public finance. Trade and service activities generate frequent low-value transactions, fragmented receipts, and multiple informal settlement channels that complicate tax observation. Where cash acceptance remains dominant and fiscal devices are weakly enforced, part of turnover escapes registration and undermines municipal revenue planning. Uzbekistan's reform agenda has therefore shifted from episodic inspections toward digitally mediated monitoring instruments capable of tracing transaction behavior continuously. This shift is especially important for subnational budgets because retail and service activities form a broad and recurring taxable base. The policy question is no longer whether digital control matters, but how monitoring architecture should be designed to narrow concealed revenue streams effectively.

Recent legal reforms in Uzbekistan have created a markedly different institutional environment for monitoring retail and service payments. The 2025 legislative package revised liability for breaches involving cash registers, settlement terminals, electronic payment systems, and special QR codes, thereby broadening the compliance perimeter [1]. In parallel, Presidential Resolution PQ-247 established a special legal regime for individual entrepreneurs and self-employed persons, linking simplified taxation, platform reporting, and mandatory availability of special QR instruments [2]. These reforms do more than tighten sanctions, because they also redefine the informational infrastructure through which fiscal behavior becomes visible. Consequently, the study of hidden receipts can no longer rely solely on classical audit theory or descriptive tax

administration analysis. It must instead examine how legal obligations, payment technologies, and behavioral responses interact within a single fiscal monitoring mechanism.

The purpose of this article is to improve the fiscal monitoring mechanism aimed at reducing hidden cash receipts in trade and services while expanding the local tax base. To achieve that purpose, the article combines legal analysis, administrative logic, digital payment statistics, and sectoral service dynamics from Uzbekistan during 2021-2025. Particular attention is devoted to the relationship between point-of-sale discipline, terminal acceptance, QR-enabled payments, and receipt issuance practices within small-business intensive segments. The article argues that an effective monitoring mechanism should not merely detect isolated violations, but should rank them by fiscal risk and revenue mobilization potential. It also proposes a system in which information from cash registers, terminals, payment platforms, and local tax offices is integrated into an operational control loop. Such a design offers a more realistic path for converting observed transaction traces into measurable local budget gains [3].

Main Part

Unlike asset-based enforcement, fiscal monitoring in retail trade begins with transaction visibility rather than ex post debt recovery. The central premise is that concealed receipts emerge where the state cannot reliably observe the moment of sale. In trade and services, this moment is technologically capturable through cash registers, payment terminals, special QR codes, and platform-based receipts. When these instruments operate as separate compliance islands, taxpayers can migrate between channels and preserve informal turnover. A monitoring mechanism becomes effective only when it treats these channels as substitutable manifestations of one commercial event. Therefore, the design challenge lies in synchronizing heterogeneous payment traces into a unified fiscal signal that local tax administrations can interpret promptly.

Evidence from the payment system confirms that retail digitization has already widened the measurable perimeter of economic activity. According to the Central Bank, the total value of payments processed through 426 thousand payment terminals reached 326.7 trillion soums in 2024, substantially exceeding earlier years [4]. The same report shows that remote and contactless instruments became more prominent as QR, NFC, and platform-based solutions expanded among business entities. Such growth matters fiscally because every additional digital transaction potentially substitutes an unregistered cash payment that previously escaped observation. Yet the existence of infrastructure alone does not guarantee compliance, since merchants may still refuse terminals, omit receipts, or reroute payments outside registered devices. For that reason, fiscal monitoring must measure both technological availability and actual transactional discipline.

Another crucial consideration concerns the trade and services structure that underpins local tax capacity in Uzbekistan's regions. Official statistics indicate that trade services consistently occupy the largest share within total market services, with retail segments remaining dominant in 2025 [5]. Small business entities also account for a substantial share of retail turnover, which means tax administration outcomes are strongly shaped by micro and small merchant behavior [6]. This sectoral composition explains why hidden receipts in thousands of fragmented outlets can produce significant aggregate revenue losses for local budgets. It also suggests that an effective mechanism should focus less on rare large violations and more on frequent medium-risk noncompliance. In other words, the architecture of monitoring must reflect the real distribution of turnover, traders, and payment modalities across territorial markets.

From a methodological perspective, hidden receipts should be interpreted as a discrepancy between economic activity that is technologically observable and turnover that is fiscally registered. This discrepancy can be inferred from combinations of terminal use, QR issuance, receipt generation, average transaction values, and repeated refusal complaints. A merchant displaying high sales activity but persistently low fiscal receipt counts generates a stronger concealment signal than one with occasional device interruptions. Likewise, a business that accepts only cash despite functioning within a QR-enabled service cluster deserves a differentiated risk assessment. Such logic requires moving beyond binary compliance judgments toward probabilistic monitoring based on transaction anomalies. Hence, the proposed mechanism relies on risk scoring rather than uniform sanctioning, allowing local tax units to direct attention where hidden turnover is most likely concentrated [3].

Legal modernization after 2025 significantly strengthened this analytical transition from episodic inspection to evidence-based fiscal surveillance. The revised Article 221 of the legislation explicitly covers failures to use mandatory cash registers, terminals, electronic payment systems, or special QR codes, as well as refusal to issue required documents or accept eligible noncash payments [1]. The same provision also differentiates sanctions by targeting the use of another taxpayer's registered terminal or QR instrument with a much higher penalty. This is economically important because borrowed devices and third-party QR codes create a deliberate masking technique rather than a simple compliance lapse. Therefore, the law implicitly supports a risk hierarchy in which intentional concealment receives stronger response than passive omission. A modern monitoring mechanism should formalize that hierarchy analytically instead of leaving it only to discretionary inspection practice.

The role of PQ-247 is equally significant because it links payment discipline with the formalization pathway for entrepreneurs operating on digital platforms. The resolution introduced a one percent turnover tax regime for eligible individual entrepreneurs and self-employed persons, while assigning reporting and payment responsibilities to payment organizations within the special legal regime [2]. It also made the presence of a platform-generated special QR code a mandatory retail requirement, effectively equating its absence with nonuse of cash registers or terminals. This innovation reduces the administrative distance between platform turnover, tax reporting, and retail compliance checks. It also creates an opportunity to observe merchants who are transitioning from informal activity into simplified formal regimes without imposing classical paperwork burdens. Consequently, fiscal monitoring can become both stricter and more inclusive when legal simplification is paired with traceable payment channels.

A decisive shift in monitoring quality occurs when administrative data are organized around the commercial event rather than around isolated violations. In practical terms, one sale can generate several digital footprints: a terminal authorization, a QR acceptance record, a fiscal receipt, a merchant identifier, and a geolocated outlet marker. If these elements are reconciled in near real time, local tax authorities gain a much sharper picture of underreporting patterns. If they remain disconnected, enforcement continues to rely on fragmented evidence and manual suspicion. The proposed mechanism therefore begins with event-level integration and only afterwards aggregates risks at the outlet, taxpayer, and territorial levels. Such sequencing improves both analytical accuracy and the fiscal relevance of subsequent control actions [7].

Table 1. Statistical Background of Formalization-Sensitive Trade and Service Indicators in Uzbekistan, 2021-2025

Source: Compiled by the author from the National Statistics Committee of the Republic of Uzbekistan and author calculations based on official small business indicators [6].

Indicator	2021	2022	2023	2024	2025
Small business retail turnover, trillion UZS	186.8	229.2	287.1	345.4	400.5
Small business services volume, trillion UZS	231.5	294.2	378.0	477.9	595.1
Retail turnover annual growth, %	—	22.7	25.3	20.3	16.0
Services volume annual growth, %	—	27.1	28.5	26.4	24.5
Retail-to-services ratio, %	80.7	77.9	76.0	72.3	67.3
Retail turnover cumulative growth vs 2021, %	0.0	22.7	53.7	84.9	114.4
Services cumulative growth vs 2021, %	0.0	27.1	63.3	106.4	157.1
Average annual retail increment since 2021, trillion UZS	—	42.4	50.2	52.9	53.4
Average annual	—	62.7	73.2	82.1	90.9

services increment since 2021, trillion UZS					
--	--	--	--	--	--

Table 1 synthesizes the macro and payment environment in which hidden receipt risks evolved during 2021-2025. The figures show that small business retail turnover and the volume of services expanded strongly, while terminal and QR-enabled transaction flows also increased. At the same time, the shadow and informal economy remained materially significant, meaning growth in digital instruments did not automatically eliminate concealed turnover. This coexistence of digital expansion and persistent informality is precisely why monitoring design matters more than infrastructure count alone. A large terminal network may coexist with selective cash use if merchants can still manipulate receipt issuance or channel switching. Thus, fiscal monitoring must be built as a behavioral control system, not merely as a technical inventory of devices.

The first implication of these trends is that local tax authorities should treat payment digitization as a source of comparative evidence. A district exhibiting rapid growth in trade services but unusually weak receipt density relative to terminal activity should be flagged automatically. Likewise, a territory with growing QR issuance but low corresponding fiscal registration may indicate partial adoption aimed at formal appearance rather than genuine compliance. Comparative diagnostics are especially useful for subnational budgets because they reveal where mobilizable reserves are territorially concentrated. They also help avoid overly uniform inspection strategies that waste administrative effort on low-risk localities. For this reason, territorial benchmarking should become a permanent layer within the proposed fiscal monitoring system [8].

The second implication concerns the economics of merchant choice under alternative payment disciplines in retail practice. Many small traders do not reject formal devices because of one single tax motive; they respond to liquidity needs, customer habits, device costs, and perceived enforcement probability. Nevertheless, when sanctions rise and digital acceptance becomes easier, the relative attractiveness of concealed cash turnover declines. This means the state can influence behavior more effectively by lowering compliance frictions while raising the expected cost of deliberate opacity. Monitoring design should therefore combine detection with facilitation, especially in service niches where transaction values are small but highly repetitive. That dual approach is more fiscally productive than relying exclusively on punitive raids after large arrears have already emerged.

A third implication follows from the relation between hidden turnover and local budget planning. Revenue forecasts at the territorial level become less reliable when service-sector turnover grows faster than registered tax receipts. Such divergence materially complicates expenditure commitments, interbudgetary balancing, and fiscal accountability for district administrations. PQ-397, which strengthened digital budget forecasting and territorial revenue planning, provides a supportive institutional backdrop for integrating monitoring outputs into local fiscal management [9]. Once monitoring indicators are linked to budget forecasting, tax control ceases to be a narrow compliance task and becomes part of public finance strategy. In that sense, reducing hidden receipts should be understood as a forecasting and governance issue as much as a tax enforcement issue.

The practical operation of the mechanism requires a sequence of analytical filters that transform raw payment data into prioritized control cases. The first filter checks whether a merchant legally required to use NKT, terminals, or special QR instruments has active and current identifiers. The second filter compares expected transaction traces with actual fiscal receipt issuance over rolling observation windows. The third filter classifies anomalies by severity, distinguishing temporary disruptions from repeated refusals, channel substitution, and third-party instrument usage. Only after these filters are completed should the case move into warning, field verification, or sanction pathways. This sequence reduces arbitrary intervention and makes enforcement more proportionate to the fiscal significance of each violation [10].

Risk classification becomes more reliable when it incorporates sector-specific transaction behavior rather than generic turnover assumptions. Cafes, delivery services, beauty salons, repair shops, pharmacies, and small retail outlets differ in ticket size, payment mix, and time-of-day concentration. A uniform threshold applied across all categories will either under-detect concealment in some activities or overburden compliant firms in others. The proposed model therefore recommends sectoral baselines built from median transaction frequencies, cashless shares, receipt ratios, and complaint histories. These baselines should then be adjusted territorially because urban centers and rural districts display different consumer payment habits. Such calibration allows the monitoring mechanism to remain analytically disciplined without becoming insensitive to real market diversity.

Consumer-facing incentives also matter because receipt discipline improves when buyers perceive a tangible benefit from demanding registered proof of payment. Earlier reforms that encouraged receipt verification demonstrated that household participation can expand the informational reach of tax administration beyond formal inspections [11]. However, such participation is most valuable when complaints and receipt confirmations feed directly into the same risk engine used for administrative analysis. If citizen signals remain institutionally detached, they produce noise rather than targeted fiscal intelligence. Therefore, the monitoring mechanism should combine machine-generated anomalies with verified consumer observations in a weighted manner. This blended institutional design strengthens enforcement legitimacy while preserving analytical rigor throughout local fiscal administration.

Table 2. Risk Matrix for the Proposed NKT-Terminal-QR Fiscal Monitoring Mechanism

Source: Developed by the author on the basis of O'RQ-1108, PQ-247, the Tax Code, and official payment-system practice [1], [2], [7].

Violation / signal	Primary data source	Fiscal risk level	Local budget implication	Recommended response
No fiscal receipt despite recorded sale activity	NKT logs, complaint records	High	Direct underreporting of taxable turnover	Automated warning, rapid verification, repeated-case sanction
Refusal to accept terminal payment	Terminal complaint file, outlet inspection	Medium-High	Preserves cash opacity and suppresses	Short correction window, then

			noncash traceability	targeted inspection
Refusal to accept special QR payment	QR platform log, taxpayer profile	Medium-High	Blocks low-cost formal payment channel for small merchants	Digital notification and mandatory compliance check
Use of another taxpayer's terminal	Acquirer data, merchant identifiers	Very High	Masks real seller and diverts taxable turnover	Immediate high- priority field action and sanction
Use of another taxpayer's QR code	QR-platform registry, merchant metadata	Very High	Conceals outlet- level fiscal base and distorts territorial assignment	Immediate sanction procedure and forensic reconciliation
Inactive device with continuing commercial activity	Registry status, electricity or sales traces	Medium	Enables selective cash collection outside fiscal capture	Risk scoring and timed reactivation requirement
Large gap between sales intensity and receipt density	NKT analytics, sector baseline	High	Suggests systematic suppression of recorded receipts	Analytical review followed by selective audit
Repeated short- term outages during peak hours	Device telemetry, time- stamped turnover patterns	Medium	Facilitates strategic migration to unregistered cash moments	Pattern-based warning and technical inspection
Low cashless acceptance in digitally dense service clusters	Territorial benchmark dashboard	Medium	Reduces formalization speed and local revenue mobilization	Territorial outreach plus comparative supervision

Table 2 presents the operational structure of the proposed NKT-terminal-QR monitoring mechanism and its associated response matrix. The table emphasizes that violations should be separated by source, fiscal risk, and recommended action rather than grouped into one undifferentiated compliance category. That distinction is essential because refusal to accept a QR payment, omission of a receipt, and use of a чужой QR instrument are not equivalent from either a legal or fiscal perspective. Their probabilities of deliberate concealment and their budgetary

consequences differ materially across trade and service segments. Therefore, enforcement effectiveness depends on the accuracy of response matching, not simply on the number of inspections conducted. A mechanism that classifies correctly can recover more tax base with fewer intrusive interventions.

The architecture proposed here also reduces transaction costs for compliant businesses, which is crucial for maintaining voluntary cooperation. When low-risk anomalies trigger automated warnings and self-correction windows, entrepreneurs can regularize behavior without immediately entering punitive procedures. That design mirrors broader reforms in Uzbekistan's tax administration, where digital interaction increasingly substitutes paper-heavy processes and discretionary contact [12]. It also preserves enforcement capacity for higher-risk cases involving systematic receipt suppression or instrument substitution. In economic terms, the mechanism reallocates administrative resources from routine verification toward fiscally meaningful intervention. Such reallocation improves not only compliance outcomes but also the perceived fairness of local tax oversight.

An often overlooked benefit of integrated fiscal monitoring is its contribution to competition policy and market neutrality. Merchants who conceal receipts can undercut compliant competitors by avoiding taxes, distorting prices, and retaining informal cash advantages. When monitoring becomes more consistent and data-driven, the effective tax burden is distributed more evenly across similar firms. This strengthens incentives for formal firms to remain within the registered economy and invest in lawful payment infrastructure. It also improves the quality of local business statistics used for regional development planning. Hence, the gains from monitoring extend beyond revenue collection into the broader institutional quality of the market environment. There is also a macro-fiscal reason to prioritize hidden receipt reduction in retail and services. The President's 2026 Address noted that the uncontrolled and shadow economy had been reduced from earlier levels near one half to around twenty eight percent, while future reforms aim to push cashless transactions in trade and services above seventy five percent [13]. These targets imply that monitoring mechanisms must now deliver measurable implementation capacity rather than symbolic control. The retail and service economy is where these targets become operationally real, because everyday payments determine whether formalization deepens or stalls. Accordingly, local tax monitoring should be treated as a frontline instrument of macroeconomic formalization policy. Its design must therefore support both national anti-shadow objectives and district-level revenue mobilization.

For this reason, performance evaluation should move beyond counting devices installed or inspections completed. The more meaningful indicators are receipt density per outlet, share of noncash acceptance among obligated businesses, anomaly resolution speed, repeated violation rates, and additional local revenue mobilized after intervention. These indicators reveal whether monitoring changes actual fiscal behavior rather than merely administrative appearances. They also allow regional tax offices to compare effectiveness while accounting for structural differences in commerce and services. Embedding such metrics in regular reporting would strengthen institutional learning and reduce dependence on occasional campaigns. Over time, this would turn fiscal monitoring into a continuously improving governance function instead of a reactive enforcement cycle.

Implementation, however, should remain continuously and institutionally sensitive to data quality and proportionality concerns. Temporary internet interruptions, hardware failures, and onboarding problems for small merchants can generate false positives if the monitoring engine is

too rigid. To avoid this, anomaly scoring should include persistence, repetition, and cross-source confirmation before high-severity actions are initiated. The model should also maintain an auditable trail explaining why a taxpayer was classified into a particular risk tier. Such transparency is necessary for legal defensibility and for sustaining business trust in digital administration. A technically advanced system that lacks procedural fairness would ultimately weaken, rather than strengthen, durable compliance.

Taken together, these arguments support a redefinition of fiscal monitoring from a narrow inspection tool into an integrated local revenue instrument. In that redefinition, NKT, terminals, QR codes, receipts, platform data, and consumer signals become coordinated observables within one administrative framework. The primary objective is not punishment for its own sake, but the reduction of concealed turnover that erodes the tax base of cities and districts. Where this framework functions well, local budgets gain more stable own-source revenues and regional fiscal planning becomes more realistic. Where it fails, digital infrastructure may expand while hidden receipts simply migrate between channels. The decisive factor is therefore the quality of integration, prioritization, and response embedded within the monitoring mechanism itself.

Conclusion

The analysis confirms that hidden receipt reduction in trade and services cannot be achieved through isolated inspection practices or device installation campaigns alone. Effective control emerges only when payment terminals, cash registers, QR instruments, and receipt issuance are monitored as interconnected evidence of one taxable commercial event. This integrated perspective makes it possible to distinguish technical noncompliance from deliberate concealment and to prioritize interventions according to local fiscal significance. As a result, fiscal monitoring becomes a direct instrument for strengthening own-source revenues of territorial budgets rather than a narrowly punitive administrative routine.

The study also demonstrates that recent legal and digital reforms in Uzbekistan create a realistic foundation for a more selective and evidence-based monitoring regime. Stronger sanctions under the revised legal framework, simplified platform-based formalization, and expanding noncash infrastructure together reduce the feasibility of persistent hidden turnover. However, these advantages can generate stable fiscal results only when they are embedded in a monitoring system using risk scoring, territorial comparisons, sectoral baselines, and auditable response logic. Therefore, improving the NKT-terminal-QR monitoring mechanism is both a tax-administration task and a broader public-finance strategy for local budget resilience.

Recommendations

1. Introduce an event-level reconciliation module that automatically links terminal authorizations, fiscal receipts, merchant identifiers, and QR payment records into one taxable transaction profile.
2. Create territorial risk dashboards for district tax offices that rank outlets by receipt density anomalies, cashless refusal frequency, and repeated device-substitution signals.
3. Establish sector-specific monitoring thresholds for cafes, delivery services, retail shops, beauty services, repair services, and pharmacies instead of using one universal compliance benchmark.
4. Combine automated warning procedures with short self-correction windows for low-risk anomalies, while reserving intensive field actions for repeated and fiscally material concealment patterns.

5. Integrate fiscal monitoring outputs into local budget forecasting and performance evaluation so that additional registered turnover is measured as a revenue mobilization result, not merely as an inspection statistic.

References

1. Republic of Uzbekistan. (2025, December 25). Law No. O'RQ-1108 on amendments and additions to certain legislative acts in connection with the adoption of the main directions of tax and budget policy for 2026. LexUZ.
2. President of the Republic of Uzbekistan. (2025, August 12). Resolution No. PQ-247 on measures to create favorable conditions for individual entrepreneurs and self-employed persons. LexUZ.
3. President of the Republic of Uzbekistan. (2025, December 30). Resolution No. PQ-397 on measures to improve the procedure for forecasting budget revenues and strengthening interagency cooperation. LexUZ.
4. Central Bank of the Republic of Uzbekistan. (2025). Annual report 2024. Central Bank of Uzbekistan.
5. National Statistics Committee of the Republic of Uzbekistan. (2026). Key indicators of the service sector in the Republic of Uzbekistan for January-December 2025. Statistics Agency.
6. National Statistics Committee of the Republic of Uzbekistan. (2026). Main indicators of small business entities in the Republic of Uzbekistan for January-December 2025. Statistics Agency.
7. Republic of Uzbekistan. (2019, December 30; as amended through 2025). Tax Code of the Republic of Uzbekistan. LexUZ.
8. Statistics Agency under the President of the Republic of Uzbekistan. (2024). Production of gross domestic product of the Republic of Uzbekistan for January-September 2024. Statistics Agency.
9. President of the Republic of Uzbekistan. (2025, December 26). Address of the President of the Republic of Uzbekistan to the Oliy Majlis and the people of Uzbekistan. President.uz.
10. Central Bank of the Republic of Uzbekistan. (2023). Annual report 2022. Central Bank of Uzbekistan.
11. Central Bank of the Republic of Uzbekistan. (2024). Annual report 2023. Central Bank of Uzbekistan.
12. Republic of Uzbekistan. (2022, May 12). Resolution No. 255 on additional measures in the field of trade and services, including the use of electronic fiscal checks and marketplace settlement procedures. LexUZ.

THE CARDIAC CONDUCTION SYSTEM: HISTOPHYSIOLOGICAL CHARACTERISTICS OF THE GIS BUNDLE AND PURKINJE FIBERS

Tashkent State Medical University,
Termez Branch, Faculty of General Medicine,
1st-year student, Eshboyeva Marjona
+998 505157803

Abstract: This article provides a scientific analysis of the histophysiological characteristics of the cardiac conduction system, specifically the bundle of His and Purkinje fibers, as well as the activity of pacemaker cells that form the basis of cardiac automatism. The study examines the mechanisms of cardiac impulse generation and conduction, their physiological foundations at the cellular level, and the significance of ion channel activity. Disruptions of cardiac conduction, particularly the causes of blocks and arrhythmias, are explained at cellular and molecular levels. The article also reviews modern approaches to the detection of cardiac rhythm disorders and their clinical assessment in medical practice.

Keywords: cardiac conduction system, pacemaker cells, cardiac automatism, bundle of His, Purkinje fibers, depolarization, ion channels, heart rhythm, arrhythmia, block, electrophysiology, myocardium, impulse conduction, sinoatrial node, atrioventricular node.

Introduction. In modern medicine and physiology, the cardiovascular system is regarded as one of the fundamental mechanisms of the organism's vital activity. The continuous and rhythmic function of the heart ensures the delivery of oxygen and nutrients to body tissues. This process is carried out through the heart's specialized conduction system. The cardiac conduction system is a complex physiological network composed of specialized cells responsible for generating impulses and transmitting them throughout the myocardium.

According to scientific sources (A.C. Guyton, J.E. Hall; W.F. Ganong), cardiac automatism and conductivity are determined by the specialized histological structure of these cells. Unlike ordinary myocardial cells, they possess the ability to generate impulses independently and conduct them at high speed. The main components of the cardiac conduction system include the sinoatrial node (the primary pacemaker), the atrioventricular node, the bundle of His, and Purkinje fibers.

The sinoatrial node is considered the primary rhythm generator of the heart. The pacemaker cells located in this region spontaneously undergo depolarization due to the instability of their membrane potential, thereby generating electrical impulses. These impulses are transmitted to the ventricles via the atrioventricular node and further rapidly and coordinately distributed through the bundle of His and Purkinje fibers to the myocardium. As a result, synchronized contraction of all cardiac chambers is achieved.

The histophysiological properties of the cardiac conduction system play a crucial role in ensuring its efficient function. For instance, Purkinje fibers have a large diameter, allowing rapid impulse conduction, which ensures simultaneous ventricular contraction. The branching structure of the bundle of His guarantees precise directional propagation of impulses. Under the influence of various pathological factors, functional and structural alterations may occur in the cardiac conduction system. Scientific studies indicate that disturbances in ion channel function, hypoxia, metabolic changes, and degenerative processes in tissues can lead to impaired cardiac rhythm and conduction. This may result in arrhythmias, heart blocks, and other cardiovascular disorders. Currently, the study of the cardiac conduction system is one of the most important areas in cardiology and clinical medicine. Electrophysiological investigations, electrocardiography, and modern diagnostic techniques are being used to identify the causes of rhythm disturbances and to develop effective treatment strategies.

Main Part: The cardiac conduction system is an essential structure responsible for ensuring the physiological activity of the heart by generating impulses, conducting them, and coordinating the synchronized contraction of the myocardium. The histophysiological characteristics of this system are closely associated with the fundamental functional properties of the heart, such as automatism, excitability, and conductivity. Cardiac automatism is determined by the activity of specialized pacemaker cells. These cells are located in the sinoatrial node and are characterized by an unstable membrane potential. According to scientific literature, the resting potential in pacemaker cells is not stable but undergoes a gradual depolarization process. This process is known as “diastolic depolarization” and forms the basis for spontaneous impulse generation in the heart. The movement of sodium and calcium ions into the cell, along with the efflux of potassium ions, constitutes the primary electroionic mechanism of this process.

The atrioventricular node serves as an important component of the cardiac conduction system, performing the function of temporarily delaying the impulse. This ensures the physiological sequence between atrial and ventricular contractions.

The relatively slow conduction velocity within this node plays a crucial role in maintaining the coordinated activity of the heart.

The bundle of His originates from the atrioventricular node and divides into right and left bundle branches. This structure represents the main conduction pathway for transmitting impulses to the ventricular myocardium. Histologically, the fibers of the bundle of His have a specialized structure; compared to ordinary myocardial cells, they exhibit lower contractility but significantly higher conductivity. Rapid and accurate transmission of impulses through the His system ensures synchronous contraction of the ventricles. Purkinje fibers represent the terminal component of the cardiac conduction system and are of particular importance. They consist of large-diameter cells rich in glycogen, which enables extremely rapid impulse conduction. As a result, simultaneous depolarization occurs throughout the ventricular myocardium, ensuring an effective systole. Another important feature of Purkinje fibers is their ability to exhibit secondary automatism, meaning they can generate impulses under certain conditions.

The function of the cardiac conduction system is regulated by a complex network of ion channels. The selective movement of sodium, calcium, and potassium ions generates the action potential. In pacemaker cells, calcium ions play the primary role, whereas in Purkinje fibers, fast sodium channels ensure rapid impulse propagation. Any disturbance in these ion mechanisms negatively affects cardiac rhythm and conduction.

Under pathological conditions, various conduction disturbances may occur in the cardiac system. The most common of these are blocks and arrhythmias. Blocks are characterized by partial or complete obstruction of impulse conduction. For example, in atrioventricular block, impulses fail to reach the ventricles or are significantly delayed. Bundle branch block disrupts the synchronous contraction of the ventricles. Arrhythmias arise due to disturbances in impulse generation or conduction. Their development is closely associated with ion channel dysfunction, hypoxia, metabolic disorders, and electrolyte imbalance. At the cellular level, these processes are explained by changes in membrane potential, impaired repolarization, and altered excitability thresholds. Modern scientific research focuses on studying the cardiac conduction system at molecular and electrophysiological levels. These approaches provide a deeper understanding of the pathogenesis of cardiac rhythm disorders and serve as an important scientific basis for developing effective diagnostic and therapeutic strategies.

Conclusion. The cardiac conduction system is a complex and highly specialized system that ensures vital physiological processes in the human body. Its main components-pacemaker cells, the atrioventricular node, the bundle of His, and

Purkinje fibers-are closely interconnected and collectively maintain the rhythmic and coordinated activity of the heart.

The automaticity of pacemaker cells forms the basis for the spontaneous generation of cardiac impulses. The bundle of His and its branches rapidly and accurately transmit impulses to the ventricles, thereby enhancing the hemodynamic efficiency of the heart. Purkinje fibers, due to their high conductivity, ensure simultaneous excitation of the ventricular myocardium.

Analysis shows that the histophysiological characteristics of the cardiac conduction system are closely linked to ion channel activity, changes in membrane potential, and cellular electrophysiological processes. Disruption of these mechanisms leads to disturbances in cardiac rhythm and conduction, resulting in arrhythmias and heart blocks. A deeper understanding of the cardiac conduction system is of both theoretical and practical significance. This knowledge serves as an important scientific foundation for early diagnosis of cardiovascular diseases, understanding their pathogenesis, and developing effective treatment strategies.

REFERENCES:

1. Guyton and Hall Textbook of Medical Physiology / A.C. Guyton, J.E. Hall. – Philadelphia: Elsevier, 2021.
2. Review of Medical Physiology / W.F. Ganong. – New York: McGraw-Hill Education, 2020.
3. Color Atlas of Physiology / A. Despopoulos, S. Silbernagl. – Stuttgart: Thieme, 2019.
4. Histology: A Text and Atlas / M.H. Ross, W. Pawlina. – Philadelphia: Wolters Kluwer, 2020.
5. Medical Histology / B. Young, G. O'Dowd, P. Woodford. – Elsevier, 2018.
6. Cardiovascular Physiology Concepts / R.E. Klabunde. – Philadelphia: Lippincott Williams & Wilkins, 2017.
7. World Health Organization. Cardiovascular diseases (CVDs): Key facts. – Geneva, 2023.
8. American Heart Association. Heart conduction system and arrhythmias. – 2022.

ZAMONAVIY TEXNOLOGIYALARNI TA'LIMDA QO'LLASHNING
KAMCHILIKLARI

Buxoro davlat uniwersiteti

Amaliy fanlar kafedrası fizika, matematika va axborot texnologiyalari fakulteti

1-1KIDTM- 22 guruh 4-bosqich talabasi

To'rayeva Madina Sunnatilloevna

Annotatsiya. Ushbu maqolada zamonaviy axborot-kommunikatsiya texnologiyalarini (AKT) ta'lim jarayoniga integratsiya qilishning salbiy oqibatlari va mavjud to'siqlari tizimli ravishda tahlil qilinadi. Tadqiqotda raqamli transformatsiyaning nafaqat ijobiy tomonlari, balki o'quvchilarning akademik o'zlashtirishiga xalaqit beruvchi chalg'ituvchi omillar, "raqamli tafovut" tufayli yuzaga keladigan ijtimoiy tengsizlik va haddan tashqari ekran vaqtining jismoniy hamda ruhiy salomatlikka ta'siri yoritilgan. Shuningdek, maqolada o'qituvchilarning ish yuklamasi ortishi, texnik infratuzilmadagi kamchiliklar va kiberxavfsizlik masalalari kabi pedagogik-texnik muammolar guruhlarga ajratilgan holda o'rganiladi. Maqola yakunida texnologiyalardan foydalanishda inson omili va raqamli vositalar o'rtasidagi muvozanatni saqlash bo'yicha amaliy tavsiyalar berilgan.

Kalit so'zlar: Raqamli ta'lim, raqamli tafovut, AKTning salbiy ta'siri, kiberxavfsizlik, ta'limda ekran vaqti, pedagogik stress, texnologik bog'liqlik, interaktiv ta'lim muammolari.

Аннотация. В данной статье систематически анализируются негативные последствия и существующие препятствия интеграции современных информационно-коммуникационных технологий (ИКТ) в образовательный процесс. Исследование освещает не только положительные стороны цифровой трансформации, но и отвлекающие факторы, мешающие академической успеваемости учащихся, социальное неравенство, возникающее из-за "цифрового разрыва", и влияние чрезмерного экранного времени на физическое и психическое здоровье. Также в статье рассматриваются педагогико-технические проблемы, такие как увеличение рабочей нагрузки учителей, недостатки технической инфраструктуры и вопросы кибербезопасности, с их разделением по группам. В заключение статьи даны практические рекомендации по сохранению баланса между человеческим фактором и цифровыми инструментами при использовании технологий.

Ключевые слова: Цифровое образование, цифровой разрыв, негативное влияние ИКТ, кибербезопасность, экранное время в образовании, педагогический стресс, технологическая зависимость, проблемы интерактивного обучения.

Abstract. This article provides a systematic analysis of the drawbacks and existing barriers to integrating modern Information and Communication Technologies (ICT) into the educational process. The study explores not only the positive aspects of digital transformation but also the negative consequences, such as distractions that hinder academic performance, social inequality caused by the "digital divide," and the physical and mental health impacts of excessive screen time. Furthermore, the paper categorizes pedagogical and technical challenges, including increased teacher workload, deficiencies in technical infrastructure, and cybersecurity concerns. The article concludes with practical recommendations for maintaining a healthy balance between the human element and digital tools in education to ensure effective learning outcomes.

Keywords: Digital education, digital divide, negative impacts of ICT, cybersecurity, screen time in education, pedagogical stress, technological dependency, challenges of interactive learning.

Kirish

Bugungi shiddat bilan rivojlanayotgan raqamli davrda ta'lim tizimi misli ko'rilmagan transformatsiyani boshidan kechirmoqda. Zamonaviy texnologiyalarning ta'lim jarayoniga integratsiyalashuvi o'qitish uslublarini yangilash, resurslardan foydalanish imkoniyatini kengaytirish va o'quv jarayonini interaktiv hamda shaxsiylashtirilgan shaklga keltirishda ulkan istiqbollarni va'da qildi. Interaktiv doskalar, global onlayn platformalar va sun'iy intellektga asoslanish tizimlari an'anaviy sinfxona tushunchasini butunlay o'zgartirib yubordi.

Biroq, har qanday texnologik inqilob kabi, ta'limni raqamlashtirish jarayoni ham faqat ijobiy natijalardan iborat emas. Texnologiyalarning ta'limga jadal kirib kelishi kutilgan samaradorlik bilan bir qatorda, bir qator jiddiy muammolar va tizimli xavflarni ham yuzaga keltirdi. "Raqamli tafovut" deb ataluvchi ijtimoiy tengsizlikning chuqurlashishi, talabalarning diqqat-e'tibori tarqoqlashishi, jismoniy va ruhiy salomatlik bilan bog'liq xavotirlar shular jumlasidandir. Shuningdek, texnologiyaga haddan tashqari bog'lanib qolish inson omili — o'qituvchi va o'quvchi o'rtasidagi yuzma-yuz muloqotning qadsizlanishiga hamda mustaqil tanqidiy fikrlash qobiliyatining susayishiga olib kelishi mumkin.

Ushbu maqolada zamonaviy texnologiyalarni ta'limda qo'llashning salbiy jihatlari va ulardan foydalanishda yuzaga keladigan to'siqlar atroflicha tahlil qilinadi. Tadqiqotning maqsadi — texnologik taraqqiyotdan voz kechish emas, balki uning yashirin xavflarini anglagan holda, ta'lim samaradorligini oshirish uchun muvozanatli va xavfsiz yondashuvlarni ishlab chiqishdan iboratdir. Quyida ta'limdagi texnologik integratsiyaning texnik, pedagogik, psixologik va ijtimoiy-axloqiy kamchiliklari guruhlariga bo'lingan holda ko'rib chiqiladi.

Asosiy qism

Zamonaviy texnologiyalar ta'limni interaktiv, moslashuvchan va qiziqarli qilsa-da, tadqiqotlar ularning bir qator jiddiy kamchilik va xavflarini ham ko'rsatadi. So'nggi o'n yilliklarda ta'limga texnologiyalarning integratsiyasi o'zgaruvchan rivojlanish sifatida e'tirof etilib, o'quv tajribasini yaxshilash, kirish imkoniyatini oshirish va o'quvchilarni raqamli kelajakka tayyorlashga va'da berdi. Interaktiv doskalar va onlayn o'quv platformalaridan tortib, ta'lim ilovalari va virtual sinfxonalargacha, texnologiya, albatta, ta'lim manzarasini o'zgartirdi. Ushbu yutuqlar ko'proq shaxsiylashtirilgan o'quv tajribalarini va resurslarga kengroq kirishni ta'minladi. Biroq, har qanday muhim o'zgarishda bo'lgani kabi, tanqidiy ko'rib chiqilishi kerak bo'lgan kamchiliklar va qiyinchiliklar mavjud. Raqamli tafovut, texnologiyaga haddan tashqari bog'liqlik va yuzma-yuz muloqotning kamayishi kabi masalalar e'tiborga loyiqdir. Ushbu maqola ta'limdagi texnologiyalarning kamchiliklarini o'rganib chiqadi, texnologik integratsiya barcha o'quvchilarga kutilmagan salbiy oqibatlarisiz foyda keltirishi uchun o'qituvchilar, talabalar va siyosatchilar hal qilishi kerak bo'lgan potentsial xavf-xatarlar va muammolarni o'rganadi.

Quyida shu kamchiliklar asosiy guruhlariga ajratib yoritiladi.**Texnik va infratuzilma muammolari**

Raqamli tafovut va jihoz yetishmasligi. Kompyuter, planshet, internet kabi qurilmalarning yo'qligi yoki yetarli emasligi texnologiyadan samarali foydalanishga to'sqinlik qiladi. Ta'limga texnologiyalarni integratsiyalash bilan bog'liq eng dolzarb muammolardan biri bu raqamli tafovutdir. Barcha o'quvchilar ham texnologiya va yuqori tezlikdagi internetdan teng foydalanish imkoniyatiga ega emas, bu esa ta'lim imkoniyatlarida sezilarli tafovutlarga olib keladi. Kam ta'minlangan oilalar yoki yetarli mablag' bilan ta'minlanmagan maktablarning o'quvchilari raqamli o'quv vositalaridan to'liq foydalanish uchun zarur qurilmalar yoki ishonchli ulanishga ega bo'lmasligi mumkin, bu esa ularni tengdoshlari bilan solishtirganda noqulay ahvolga solib

qo'yadi. Bu tengsizlik mavjud ta'limdagi tafovutlarni kuchaytirishi, badavlat va nochor o'quvchilar o'rtasidagi yutuqlardagi tafovutni kengaytirishi mumkin. Bundan tashqari, texnologiyaga teng huquqli kirish imkoni bo'lmasa, shaxsiylashtirilgan va innovatsion o'quv tajribalari va'dasi ko'pchilik uchun imkonsiz bo'lib qolmoqda, bu tengsizlik sikllarini davom ettiradi va umumiy ta'lim taraqqiyotiga to'sqinlik qiladi. Ushbu kamchiliklarni bartaraf etish ta'limdagi texnologik yutuqlarning afzalliklari adolatli va inklyuziv taqsimlanishini ta'minlash uchun juda muhimdir.

Zaif texnik infratuzilma va servis. Elektr energiyasi uzilishi, internet sifati pastligi, texnik xizmat ko'rsatish va texnik yordamning yetishmasligi darslarni uzib qo'yadi

Turli ta'lim bosqichlarida uchraydigan asosiy to'siqlar

Bosqich / Kontekst	Asosiy texnik kamchiliklar
Maktabgacha va boshlang'ich	Qurilma yetishmasligi, eskirgan jihozlar, infratuzilma zaif
Maktab	Internet, texnik yordam, vaqt tanqisligi
Oliy ta'lim / onlayn	E-learning uchun zarur sharoitlarning to'liq emasligi

Pedagogik va psixologik kamchiliklar

O'qituvchi tayyorgarligi pastligi. Raqamli savodxonlik va metodik ko'nikmalar yetishmasligi texnologiyani yuzaki, samarasiz qo'llashga olib keladi

Vaqt va yuklama. Darsga tayyorlanish, texnik muammolarni hal qilish o'qituvchining vaqtini olib, yuklamasini oshiradi.

Psixologik bosim. Mobil va raqamli ta'lim sharoitida o'qituvchilarda tashvish, rol va mas'uliyat ortishi stress keltiradi

O'quvchi uchun salbiy ta'sirlar

Chalg'ituvchi omillar va noto'g'ri foydalanish. Gadgetlar o'yin, ijtimoiy tarmoq va boshqa distraksiyalar orqali darsdan chalg'itadi. Texnologiya o'qishni sezilarli darajada yaxshilash imkoniyatiga ega bo'lsa-da, u o'quvchilarning diqqatini chalg'itish xavfini ham keltirib chiqaradi. Raqamli qurilmalarda ijtimoiy tarmoqlar, o'yinlar va boshqa ta'limga oid bo'lmagan ilovalarning mavjudligi diqqatni akademik vazifalardan osongina chalg'itishi mumkin. Tadqiqotlar shuni ko'rsatdiki, texnologiya bilan bir vaqtning o'zida bir nechta vazifani bajarish umumiy akademik ko'rsatkichlar va diqqatni jamlashga salbiy ta'sir ko'rsatishi mumkin. Bildirishnomalar, xabarlar va onlayn chalg'ituvchi omillarning doimiy ravishda kirib kelishi talabalarning diqqatini parchalab, ta'lim mazmuni bilan chuqur shug'ullanishni qiyinlashtirishi mumkin. Chalg'ituvchi omillarning doimiy ravishda bombardimon qilinishi talabalarning o'qishga diqqatini jamlash, topshiriqlarni samarali bajarish va oxir-oqibat akademik maqsadlariga erishish qobiliyatiga to'sqinlik qilishi mumkin. Natijada, o'rganish uchun texnologiyadan foydalanish va uning chalg'ituvchi omillarini boshqarish o'rtasida muvozanatni topish ta'lim samaradorligini saqlab qolish uchun juda muhimdir.

O'qish samaradorligining pasayishi. Raqamli matnlarni o'qish va ekranda yozish bosma formatga nisbatan tushunish va natijani pasaytirishi ko'rsatilgan.

Ekran vaqti va salomatlik. Ortiqcha ekran vaqti yoshlarning sog'lig'i, muloqoti va o'qish odatlariga salbiy ta'sir ko'rsatishi mumkin. Texnologiyalardan uzoq vaqt foydalanish o'quvchilarning sog'lig'i va farovonligiga salbiy ta'sir ko'rsatishi mumkin. Ekran oldida uzoq vaqt turish ko'zning zo'riqishi, bosh og'rig'i va noto'g'ri holat kabi bir qator sog'liq muammolari bilan bog'liq bo'lib, bu uzoq muddatli mushak-skelet tizimi kasalliklariga olib kelishi mumkin. Raqamli o'qishning harakatsiz tabiati ko'pincha jismoniy faollikning pasayishiga olib keladi, bu esa semirish va boshqa jismoniy sog'liq muammolari kabi muammolarga olib keladi. Bundan tashqari, ekranlar va raqamli kontentga doimiy ta'sir qilish ruhiy salomatlikka salbiy ta'sir ko'rsatishi, xavotir va tushkunlik kabi xavotirlarga olib kelishi mumkin. Onlayn bezorilik, kiber ta'qib va raqamli platformalarda ijtimoiy taqqoslash kabi omillar bu ruhiy salomatlik muammolarini yanada kuchaytirishi mumkin. Ushbu xavflarni kamaytirish uchun ta'lim muassasalari va ota-onalar uchun texnologiyalardan muvozanatli foydalanishni targ'ib qilish, muntazam jismoniy faollikni rag'batlantirish va o'quvchilar o'rtasida sog'lom raqamli odatlarni shakllantirish muhimdir.

Ijtimoiy-axloqiy va xavfsizlik muammolari

Maxfiylik va xavfsizlik. Shaxsiy ma'lumotlar, onlayn kuzatuv va kiberxavfsizlik bilan bog'liq xavotirlar ortmoqda. Ta'limda texnologiyalardan foydalanish jiddiy maxfiylik va xavfsizlik muammolarini keltirib chiqaradi. Ta'lim muassasalari shaxsiy ma'lumotlarni tobora ko'proq to'plashi bilan ular ushbu ma'lumotlarni ruxsatsiz kirish va noto'g'ri foydalanishdan himoya qilish uchun kuchli choralarni ko'rishlari kerak. Kiberxavfsizlik tahdidlari, ma'lumotlarning buzilishi va shaxsni o'g'irlash tobora ortib borayotgan tashvishlar bo'lib, ular maxfiy ma'lumotlarning xavfsizligini ta'minlash uchun qat'iy xavfsizlik choralari talab qiladi. Ushbu xavflarning salohiyati talabalar tomonidan qoldirilgan keng raqamli izlar va turli onlayn platformalar va vositalarning integratsiyasi bilan ortadi. Bundan tashqari, ta'lim muassasalarida kuzatuv vositalari va monitoring dasturlaridan tobora ko'proq foydalanish maxfiylikning buzilishiga olib kelishi va talabalar va muassasalar o'rtasidagi ishonchni yo'qotishi mumkin. Texnologik yutuqlardan foydalanish va qat'iy maxfiylik standartlarini saqlash o'rtasidagi muvozanat juda muhimdir. Ta'lim muassasalari talabalar ma'lumotlarini himoya qilish bilan birga xavfsiz va ishonchli ta'lim muhitini yaratish uchun shaffoflik va mustahkam xavfsizlik amaliyotlariga ustuvor ahamiyat berishlari kerak.

Ijtimoiy tengsizlik va chetlashtirish. Raqamli imkoniyatlar teng bo'lmaganda, ba'zi guruhlar ta'limdan ortda qolishi, "raqamli ajratish" kuchayishi mumkin.

Sun'iy intellekt va shaxsiyatga ta'sir: AI'ga haddan tashqari tayanish mustaqil fikrlash va shaxsiy rivojlanishni susaytirishi mumkinligi ta'kidlanadi. Texnologiyaga bog'liqlik texnik muammolar yuzaga kelganda jiddiy qiyinchiliklarni keltirib chiqarishi mumkin. Tizimdagi uzilishlar, dasturiy ta'minotdagi nosozliklar va apparat muammolari o'quv jarayonini buzishi, natijada o'qitish vaqtining yo'qolishiga va ta'lim jarayonining rivojlanishiga to'sqinlik qilishi mumkin. Talabalar ham, o'qituvchilar ham ushbu texnik qiyinchiliklarga duch kelganda umidsizlik va kechikishlarga duch kelishlari mumkin, bu esa raqamli o'quv tashabbuslarining umumiy samaradorligiga putur etkazishi mumkin. Bunday uzilishlar, ayniqsa, talabalar o'qish uchun texnologiyaga juda ko'p tayanganlarida, ta'limning uzluksizligiga putur etkazishi mumkin. Ushbu uzilishlarni minimallashtirish uchun texnologiyalarga ishonchli va izchil kirishni ta'minlash, jumladan, zamonaviy dasturiy ta'minotni saqlash, texnik yordamga ega bo'lish va zaxira tizimlarini joriy etish muhimdir. Potensial texnik muammolarni proaktiv ravishda hal qilish orqali ta'lim muassasalari uzluksiz va uzluksiz o'quv tajribasini yaxshiroq qo'llab-quvvatlashlari mumkin.

Xulosa

Zamonaviy texnologiyalar ta'lim tizimining ajralmas qismiga aylangan bo'lsa-da, ularning integratsiyasi o'ziga xos murakkabliklar va "tuzoq"lardan xoli emas. Maqolada tahlil qilingan texnik infratuzilma muammolari, raqamli tengsizlik, psixologik bosim va xavfsizlikka oid xatarlar shuni ko'rsatadiki, texnologiyaning o'zi ta'lim sifatini kafolatlovchi sehrli tayoqcha emas. Aksincha, nazorat qilinmagan va metodik asoslanmagan raqamlashtirish o'quv jarayonining samaradorligini pasaytirib, yosh avlodning ijtimoiy va intellektual rivojlanishiga salbiy ta'sir ko'rsatishi mumkin.

Ta'limdagi texnologik kamchiliklarni bartaraf etish va xavflarni minimallashtirish uchun quyidagi yo'nalishlarda ish olib borish maqsadga muvofiq:

1. Muvozanatni saqlash. Raqamli vositalar o'qituvchining o'rnini bosuvchi emas, balki unga yordam beruvchi instrument bo'lishi kerak. An'anaviy yuzma-yuz muloqot va jonli bahs-munozaralar ta'limning asosi bo'lib qolishi shart.
 2. Raqamli savodxonlikni oshirish. Faqat o'quvchilarni emas, balki pedagoglarni ham texnologiyalardan pedagogik maqsadlarda to'g'ri foydalanishga o'rgatish, ularning raqamli charchoq va stressga qarshi chidamliligini oshirish lozim.
 3. Infrastrukturaviy tenglik. Davlat va ta'lim muassasalari darajasida raqamli tafovutni kamaytirish, barcha o'quvchilar uchun texnologik resurslardan foydalanishda teng imkoniyatlar yaratish ustuvor vazifa bo'lib qoladi.
 4. Xavfsizlik madaniyati. Ta'lim jarayonida shaxsiy ma'lumotlar himoyasi va kibergigiyena qoidalariga rioya qilish tizimli ravishda yo'lga qo'yilishi zarur.
- Texnologiya ta'limga xizmat qilishi kerak, ta'lim texnologiyaning asiriga aylanmasligi lozim. Faqatgina inson omili va innovatsion texnologiyalarning oqilona simbiozigina kelajak avlod uchun sifatli va xavfsiz ta'lim muhitini kafolatlay oladi.

Foydalanilgan adabiyotlar va saytlar ro'yxati:

1. These search results were found and analyzed using Consensus, an AI-powered search engine for research. Try it at <https://consensus.app>. © 2026 Consensus NLP, 2.Inc. Personal, non-commercial use only; redistribution requires copyright holders' consent.
3. Alibigloo, H. (2025). Unraveling the Impact of Modern Technologies on Young Minds: A Comprehensive Study. OBM Neurobiology.
4. Almufarreh, A., & Arshad, M. (2023). Promising Emerging Technologies for Teaching and Learning: Recent Developments and Future Challenges. Sustainability.
5. Angwaomaodoko, E. (2023). An appraisal on the Role of Technology in Modern Education, Opportunities and Challenges. Path of Science. <https://doi.org/10.22178/pos.99-4>
6. De Cássia Da Costa, M., Olinda, A., & Santos, A. (2024). Digital technologies in education: Challenges and opportunities for teaching and learning. VI Seven International Multidisciplinary Congress. <https://doi.org/10.56238/sevenvimulti2024-019>
7. Fesikova, O., & Matviets, P. (2025). MODERN TECHNOLOGIES IN THE EDUCATIONAL PROCESS. PHYSICAL BASIS OF SCIENCE-INTENSIVE TECHNOLOGIES IN THE MODERN WORLD : Proceedings of the All-Russian Scientific and Methodological Conference with International Participation, dedicated to the 80th anniversary of the birth of Professor V.V. Postnikov, timed to the 95th anniversary of VSUFT named af.

- 8.Ghavifekr, S., Kunjappan, T., Ramasamy, L., & Anthony, A. (2016). Teaching and Learning with ICT Tools: Issues and Challenges from Teachers' Perceptions.. Malaysian Online Journal of Educational Technology, 4, 38-57.
- 9.Hernández, F. (2024). CHALLENGES OF TECHNOLOGIZING TEACHING AND LEARNING AT UNIVERSITY. Edetania. Estudios y propuestas socioeducativos.. https://doi.org/10.46583/edetania_2024.65.1138
- 10.Kate, P., Pacharaney, U., Tale, A., Barhate, A., Sheikh, N., & Khadse, C. (2024). The Role of Technology in Modern Education. 2024 2nd DMIHER International Conference on Artificial Intelligence in Healthcare, Education and Industry (IDICAIEI), 1-5. <https://doi.org/10.1109/idicaiei61867.2024.10842811>
- 11.Kaur, K. (2023). Teaching and Learning with ICT Tools: Issues and Challenges. International Journal on Cybernetics & Informatics. <https://doi.org/10.5121/ijci.2023.120302>
12. Kunderevych, O., Bogonis, P., Kliuchko, Y., Chukhrai, L., & Sinenko, O. (2022). Educational information technologies in pandemic. International journal of health sciences. <https://doi.org/10.53730/ijhs.v6n1.3172>
- 13.Pazilah, F., Hashim, H., & Yunus, M. (2019). Using Technology in ESL Classroom: Highlights and Challenges. Creative Education. <https://doi.org/10.4236/ce.2019.1012244>
- 14.Rintaningrum, R. (2023). Technology integration in English language teaching and learning: Benefits and challenges. Cogent Education, 10. <https://doi.org/10.1080/2331186x.2022.2164690>
- 15.Rustamovna, R. (2021). Essential drawbacks of using multimedia affecting both students and teachers in language teaching classes. , 11, 41-43. <https://doi.org/10.5958/2249-7137.2021.00588.7>
- 16.Sembiring, T., Thosan, G., Fadli, M., Apriyanto, R., Namira, S., Dhea, T., & Purba, F. (2024). Dampak Perkembangan Teknologi dalam Pendidikan. Jurnal Pustaka Cendekia Hukum dan Ilmu Sosial. <https://doi.org/10.70292/pchukumsosial.v2i3.76>
- 17.Sofi-Karim, M., Bali, A., & Rached, K. (2022). Online education via media platforms and applications as an innovative teaching method. Education and Information Technologies, 28, 507 - 523. <https://doi.org/10.1007/s10639-022-11188-0>
- 18.Stoumpos, A., & Stoumpou, R. (2025). Modern Digital and Technological Educational Methods. Trends in Higher Education. <https://doi.org/10.3390/higheredu4020025>
- 19.Topalska, R. (2024). A Research on the Application of Modern Information Technologies in Teaching. TEM Journal. <https://doi.org/10.18421/tem133-27>
- 20.Zhang, J., & Yu, S. (2021). Investigating pedagogical challenges of mobile technology to English teaching. Interactive Learning Environments, 31, 2767 - 2779. <https://doi.org/10.1080/10494820.2021.1903933>

EARLY DIAGNOSIS OF HPV-ASSOCIATED CERVICAL CANCER AND
PRECANCER IN WOMEN AGED 30 AND OLDER

Askarova Z.Z., Khamidova Sh. Sh.

Bukhara Medical Institute named after Abu Ali Ibn Sina.

Relevance. The study showed that carcinogenesis and morphogenesis of HPV-associated squamous cell carcinoma of the cervix is a multistage process that is associated with the sequential development of structural changes characterized by the formation of Oct4-positive reparative, neoplastic and cancerous SEMS.

Keywords: human papillomavirus, cervical cancer, cervical intraepithelial neoplasia.

Abstract. Long-term studies have established that the human papillomavirus (HPV), which belongs to the papovaviridae family and has a tropism for stratified squamous epithelium, plays a significant role in the etiology of cervical precancer and cancer [2,5]. Most scientists believe that during HPV infection, the viral oncoproteins E6 and E7 lead to genetic instability and epigenetic abnormalities in infected cells, which triggers the process of carcinogenesis and the development of cervical cancer [1,2,4,6]. HPV has been detected in almost 99.8% of cases of invasive cervical carcinoma and in more than 60% of cases of cervical intraepithelial neoplasia [1,3,7]. The period from the primary viral infection to the development of cervical cancer is quite long – 5-10 years, therefore, cervical cancer prevention can be carried out not only by preventing HPV infection (vaccination), but also by early diagnosis of precancerous processes and systemic screening. In those countries where vaccination is carried out, where the quality and prevalence of screening is high, a 90% decrease in the incidence of invasive cervical cancer is noted [2,8,9]. To date, questions about the frequency of screening, the use of markers and methods for diagnosing cervical cancer, especially in the case of transient infection, remain open. The American Society for Colposcopy and Cervical Pathology recommends starting the cervical cancer screening program for women from the age of 21. In Denmark, the age at which screening for cervical cancer begins is 23 years, in France – 25 years, in Finland – 30 years. The issue of the specifics of cervical cancer screening in women under 30 and over 30 years of age remains controversial. To conduct an effective screening test and early diagnosis of cervical cancer, it is necessary to find methods with high specificity and sensitivity. In countries with organized cervical cancer screening based on cytological examination, a decrease in morbidity and mortality from cervical cancer has been shown [2,10]. Cytological examination reveals a large number of patients with L-SIL with ASC-US (squamous epithelial cells with atypia of unknown genesis), L-SIL (low-grade squamous intraepithelial lesions) with a relatively low risk of developing cervical cancer. Detection of H-SIL (high-grade squamous intraepithelial lesions) in patients requires further examination [1,11,12]. It has been established that immunohistochemical (ICC) and immunocytochemical (ICC) studies using double antibodies to p16/Ki67 play an important role in the differential diagnosis of these changes. HPV testing has proven effective in screening women with ASC-US and L-SIL. However, it has been found that HPV infection is unstable in most women under 30 [3,13,14], limiting its use as a primary method for detecting precancerous changes in the cervix. Cervical cancer carcinogenesis is currently understood in terms of the formation of cancer stem cells (CSCs) and spheroid epithelial-mesenchymal structures (SEMS) in tissue.

Study objective: To evaluate the effectiveness of cytological, immunocytochemical, and HPV testing for detecting cervical precancer and cancer in the presence of HPV infection.

Study material and method. All 201 women were examined according to a generally accepted protocol: clinical examination, collection of smears in SurePath vials (BD, USA), preparation of cytological preparations stained according to Papanicolaou using the TriPath processor (BD, USA), and evaluation of smears using the Bethesda system [1,15]. As a result, 3 groups of women were selected: 1) 91 women to evaluate the effectiveness of HPV testing using the PCR-NV method and liquid cytology in detecting HPV-associated cervical pathology in women aged 30 years and older.

2) 49 women to evaluate the effectiveness of a combination of methods: liquid-based cytology, p16/Ki67 double immunostaining, and HPV testing using the NR-PCR method for HPV-associated cervical pathology.

3) 61 women to study the morphological and immunohistological features of different types of SEMS.

Histological diagnosis was considered the gold standard for assessing the effectiveness of HPV testing using the NR-PCR method on a Cobas 4800 system and liquid-based cytology. The second stage assessed the sensitivity and specificity of the p16/Ki67 double immunostaining methods. In 148 cases with detected cervical pathology, in addition to cytological analysis, molecular biology testing was performed to study the expression of p16/Ki67 markers in cytological preparations prepared from residual material.

Study Results. During cytological examination, a diagnosis of high-grade squamous intraepithelial lesion (H-SIL) was made based on the detection of large clusters of scattered atypical squamous epithelial cells with a polymorphic appearance and pronounced dyskaryosis, as well as mitotic figures. L-SIL reveals squamous epithelial cells with mild dyskaryosis combined with the presence of intact mature cells in the parabasal and superficial layers. A diagnosis of ASC-US was made based on the presence of isolated groups of squamous epithelial cells with enlarged and hyperchromic nuclei in smears against a background of inflammation. ASC-US-H revealed clusters and isolated atypical squamous epithelial cells with enlarged and hyperchromic nuclei, suspicious for H-SIL. Negative smears for intraepithelial lesion contained isolated koilocytes, leukocytes, and sheets of squamous and columnar epithelium with reactive changes and leukopenia. Atypical cells were absent, consistent with a diagnosis of NILM. Cytological examination of cervical smears revealed the following changes: H-SIL in 21 women (5 women under 30 and 16 over 30), L-SIL in 23 women (10 and 13, respectively), ASC-US in 15 women (7 and 8, respectively), and NILM in 32 women (13 and 19, respectively).

Next, HPV DNA was detected in the cytological material using the Cobas 4800 PCR test and compared with the histological findings. HPV DNA was detected in 63 of the 91 women (69.2%), including 35 women under 30 and 38 over 30. Moreover, the presence of HPV in the absence of atypical cells was detected twice as often in women under 30 (69.2%) compared to women over 30 (32.1%). These results confirm the data of other researchers [3].

In NILM, HPV DNA was detected more frequently in women under 30 than in older women. This can be explained by the temporary presence of the virus in the body, specifically its transient nature in young women under 30. In this case, the treating physician is only required to monitor the patient and administer antiviral therapy.

Conclusions. 1.Reparative SEMS are found in chronic cervicitis and L-SIL. They are characterized by the absence of cellular atypia and expression of p16, p53, and CD34. Low expression of the proliferation marker Ki67, the stemness marker ALDH1, and moderate expression of Vim, the tumor marker C-MYC, and the hypoxia marker HIF-1 are detected. 2.Early diagnosis of cervical precancer and cancer should be based on a combination of methods: liquid-based cytology, HPV testing using the PCR-NV method, and ICC with dual p16/Ki67 staining. This significantly increases their sensitivity and specificity.

BIBLIOGRAPHY

1. Torre LA, Bray F, Siegel RL et al. Global Cancer Statistics, 2012. CA Cancer J Clin 2015; 65: 87–108.
2. Прилепская В.Н., Коган Е.А., Трофимов Д.Ю. Возможности диагностики и лечения заболеваний шейки матки. Акушерство и гинекология. 2013; 9: 90–6.
3. Байрамова Г.Р., Файзуллин Л.З., Королькова А.И. и др. Скрининг рака шейки матки: что нового в мировой практике. Акушерство и гинекология. 2016; 7: 17–21.
4. Khamdamova M.T., Zhaloldinova M.M., Khamdamov I.B. The state of nitric oxide in the blood serum of patients with cutaneous leishmaniasis // New Den Medicine. - Bukhara, 2023. - № 5 (55). - P. 638-643.
5. Khamdamova M.T., Zhaloldinova M.M., Khamdamov I.B. The value of ceruloplasmin and copper in the blood serum of women wearing copper-containing intrauterine devices // New Den Medicine. - Bukhara, 2023. - № 6 (56). - P. 2-7.
6. Khamdamova M.T., Khasanova M.T. Various mechanisms of pathogenesis of endometrial hyperplasia in postmenopausal women (literature review)// New Den Medicine. - Bukhara, 2023. - № 8 (58). - P. 103-107.
7. Khamdamova M.T., Akramova D.E. Genetic aspects of genital prolapse in women of reproductive age // New Den Medicine. - Bukhara, 2024. - № 2 (64). - P.420-426.
8. Khamdamova M.T., Akramova D.E. Immediate and long-term results of surgical treatment of genital prolapse in elderly women // New Den Medicine. - Bukhara, 2025. - № 3 (77). - P. 201-207.
9. Khamdamova M.T., Akramova D.E. Efficiency of various methods of treatment of women with genital prolapse // News of dermatovenerology and reproductive health. - Tashkent, 2025. - № 2 (109). - P.30-33.
10. Khamdamova M.T., Khasanova M.T. genetic mechanisms of development of endometrial hyperplastic processes in women in menopacteric age)// New Den Medicine. - Bukhara, 2025. - № 3 (77). - P. 207-211.
11. Khamdamova M.T., Khasanova M.T. Морфологические изменения эндометрия при гиперплазии // Новости дерматовенерологии и репродуктивного здоровья.-Ташкент.- 2025.- № 2 (109). - P. 12-14.
12. Khamdamova M.T., Umidova N.N. Генитальный эндометриоз – болезнь активных и деловых женщин // Новости дерматовенерологии и репродуктивного здоровья.-Ташкент.- 2025.- № 2 (109). - P. 33-14.
13. Khamdamova M.T., Akramova D.E. Генетические аспекты генитального пролапса у женщин репродуктивного возраста) // New Den Medicine. - Bukhara, 2024. - № 2 (64). - P. 420-426.

14. Klaes R, Friedrich T, Spitkovsky D et al. Overexpression of p16(INK4A) as a specific marker for dysplastic and neoplastic epithelial cells of the cervix uteri. *Int J Cancer* 2017; 92: 276–84.
15. Kalof AN, Cooper K. Our approach to squamous intraepithelial lesions of the uterine cervix. *J Clin Pathol* 2017; 60: 449–55.



ВЛИЯНИЕ ОЧИЩЕННОГО КОМПЛЕКСА ДЕТОКСИОМЫ НА КЛЕТОЧНОСТЬ ОРГАНОВ ИММУННОЙ СИСТЕМЫ ПРИ ПЕРВИЧНЫМ ИММУННЫМ ОТВЕТЕ С ТИПОМ АЦЕТИЛИРОВАНИЯ

Расулов Ф.Х.

Ферганский медицинский институт общественного здоровья, Фергана, Узбекистан

e-mail:

foziljonrasulov15@gmail.com tel:(90) 283-39-58

Актуальность темы

В патогенезе многих заболеваний большую роль играет состояние иммунной системы. В связи с этим сегодня создаются новые иммуномодулирующие препараты из растительных источников, не обладающих побочным действием, для расширения арсенала существующих средств.

Цель работы: Изучение влияния очищенного комплекса детоксиомы (ОКД) на клеточность органов иммунной системы при первичном иммунном ответе с типом ацетилирования.

Материалы и методы исследования:

Тип ацетилирования установили по активности фермента N – ацетилтрансферазы по методу Л.Н.Буловской. После определения типа ацетилирования лабораторных животных иммунизировали оптимальной дозой эритроцитами барана ЭБ – 2×10^8 /мл. На 5-е сутки после иммунизации определяли ядродержащие клетки тимуса (ЯСКТ) и брыжеечных лимфатических узлов (ЯСКБЛУ).

ОКД вводили однократно внутрибрюшинно в дозе 0,4 мл/кг вместе с ЭБ и для сравнения в одну группу вводили иммуномодулин в дозе 0,01 мл/кг.

Результаты исследования:

Установлено, что у мышей МА контрольной группы ЯСКТ составляет $49,0 \pm 1,3 \times 10^6$ /мл. Введение очищенного комплекса детоксиомы в дозе 0,4 мл/кг этот показатель достоверно увеличивается 2,0 раза ($100,0 \pm 1,6 \times 10^6$ /мл – ЯСКТ). Иммуномодулин в дозе 0,01 мл/кг повышает ЯСКТ в 1,3 раза.

Из полученных данных видно, что в контрольной группе медленных ацетилаторов ЯСКБЛУ составляет $46,5 \pm 3,1 \times 10^6$ /мл. Внутрибрюшинное введение очищенного детоксиомы достоверно повышает ЯСКБЛУ в 2,1 раза. Введение иммуномодулина ЯСКБЛУ увеличивается в 1,3 раза.

Нами установлено, что у животных БА контрольной группы ЯСКТ составляет $82,0 \pm 2,9 \times 10^6$ /мл. Однократное внутрибрюшинное введение очищенного комплекса детоксиомы в дозе 0,4 мл/кг данный показатель достоверно увеличивается 2,0 раза ($165,0 \pm 1,8 \times 10^6$ /мл – ЯСКТ). Иммуномодулин также увеличивает ЯСКТ в 1,3 раза.

В контрольной группе БА количество ЯСКБЛУ составляет $65,0 \pm 3,5 \times 10^6$ /мл. Внутрибрюшинная инъекция ОКД достоверно увеличивает ЯСКБЛУ в 2,4 раза.

Установлено, что в контрольной группе МА ядродержащие клетки тимуса в 1,7 раза и ЯСКБЛУ в 1,4 раза меньше чем в контрольной группе БА. В группе медленных ацетилаторов однократное введение очищенного комплекса детоксиомы ЯСКТ также меньше в 1,7 раза и ЯСКБЛУ в 1,6 раза чем в контрольной группе БА.

Полученные данные указывают, что иммуностимулирующий эффект очищенного комплекса детоксиомы зависит от типа ацетилирования.

Выводы:

1. В контрольной группе МА ядродержащие клетки тимуса в 1,7 раза и ЯСКБЛУ в 1,4 раза меньше чем в контрольной группе БА.
2. В группе медленных ацетиляторов однократное введение очищенного комплекса детоксиомы ЯСКТ также меньше в 1,7 раза и ЯСКБЛУ в 1,6 раза чем в контрольной группе БА.
3. Полученные данные указывают, что иммуностимулирующий эффект очищенного комплекса детоксиомы зависит от типа ацетилирования.



**KASBIY TA'LIM MUASSASALARIDA INGLIZ TILI DARSLARIDA
KOMMUNIKATIV YONDASHUVDAN FOYDALANISH SAMARADORLIGI****Eshqorayeva Ibodat****English language teacher at Termez City Technical School No. 2****Annotatsiya**

Ushbu tezisdagi kasbiy ta'lim muassasalarida ingliz tili darslarini tashkil etishda kommunikativ yondashuvdan foydalanishning pedagogik samaradorligi tahlil qilinadi. Bugungi kunda kasbiy ta'lim tizimida ingliz tilini o'qitish faqat grammatik qoidalarni o'zlashtirish yoki matn tarjima qilish bilan cheklanmasligi kerak. Chunki bo'lajak mutaxassis mehnat bozorida chet tilidan real kasbiy vaziyatlarda foydalanishga ehtiyoj sezadi. Shu sababli ingliz tili darslarida talabalarning og'zaki nutqi, tinglab tushunish ko'nikmasi, kasbiy muloqot madaniyati va amaliy kommunikativ kompetensiyasini rivojlantirish muhim hisoblanadi. Tezisdagi kommunikativ yondashuvning mazmuni, metodik imkoniyatlari, dars jarayonidagi amaliy shakllari va kasbiy ta'limdagi ahamiyati yoritiladi. Shuningdek, ushbu yondashuvning samaradorligi o'quvchilarning faolligi, mustaqil fikrlashi, kasbiy terminlardan foydalanishi va muloqotga kirishish qobiliyati bilan bog'liq holda tahlil qilinadi.

Kalit so'zlar

kasbiy ta'lim, ingliz tili, kommunikativ yondashuv, kommunikativ kompetensiya, kasbiy muloqot, interfaol metod, nutqiy faoliyat, amaliy til o'rganish.

Kirish

Zamonaviy kasbiy ta'limning asosiy vazifalaridan biri mehnat bozori talablariga mos, amaliy ko'nikmalarga ega, mustaqil fikrlaydigan va xalqaro axborot maydonida faol harakatlana oladigan mutaxassislarni tayyorlashdan iborat. Bu jarayonda ingliz tilining o'rni alohida ahamiyatga ega. Chunki ko'plab kasblarda texnik hujjatlar, ishlab chiqarish yo'riqnomalari, kompyuter dasturlari, kasbiy adabiyotlar va xalqaro hamkorlik jarayonlari ingliz tili bilan bevosita bog'liq. Shunday ekan, kasbiy ta'lim muassasalarida ingliz tilini o'qitish nazariy bilim berishdan ko'ra ko'proq amaliy kommunikativ faoliyatga yo'naltirilishi zarur.

An'anaviy ingliz tili darslarida ko'pincha grammatik qoidalarni yodlash, matnlarni tarjima qilish, tayyor dialoglarni takrorlash kabi usullar ustuvor bo'lib kelgan. Bunday yondashuv ayrim hollarda til haqidagi bilimni shakllantirsa-da, o'quvchining real muloqotga kirishish qobiliyatini yetarli darajada rivojlantirmaydi. Natijada talaba grammatikani bilishi mumkin, ammo oddiy kasbiy vaziyatda ingliz tilida fikrini erkin ifodalashda qiynaladi. Bu esa ingliz tili ta'limidagi asosiy muammo — bilim va amaliy nutq o'rtasidagi uzilishni yuzaga keltiradi.

Kommunikativ yondashuv aynan shu muammoni bartaraf etishga xizmat qiladi. Uning asosiy mohiyati tilni qoidalar yig'indisi sifatida emas, balki muloqot vositasi sifatida o'rgatishdan iborat. Bu yondashuvda dars jarayoni o'quvchini gapirishga, savol berishga, fikr bildirishga, bahslashishga, kasbiy vaziyatlarni tahlil qilishga va real hayotga yaqin topshiriqlarni bajarishga yo'naltiriladi. Kasbiy ta'lim muassasalarida esa bu yondashuv yanada muhimdir, chunki o'quvchi ingliz tilini kelajakdagi kasbiy faoliyatida qo'llashga tayyorlanadi.

Tezisning maqsadi kasbiy ta'lim muassasalarida ingliz tili darslarida kommunikativ yondashuvdan foydalanish samaradorligini nazariy va metodik jihatdan asoslashdan iborat. Tadqiqotning asosiy vazifalari kommunikativ yondashuvning mazmunini ochib berish, uning

kasbiy ta'limdagi imkoniyatlarini tahlil qilish, dars jarayonida qo'llanish shakllarini ko'rsatish va ushbu yondashuvning o'quvchilar nutqiy kompetensiyasiga ta'sirini aniqlashdan iborat.

Metodlar

Tezisni tayyorlashda nazariy-tahliliy, qiyosiy-metodik va pedagogik kuzatuv usullaridan foydalanildi. Avvalo, kommunikativ yondashuvga oid ilmiy-metodik qarashlar o'rganildi. Ingliz tilini o'qitishda kommunikativ kompetensiya, nutqiy faoliyat, kasbiy muloqot va interfaol metodlar haqidagi ilmiy manbalar tahlil qilindi. Shuningdek, kasbiy ta'lim muassasalarida ingliz tili darslarining amaliy xususiyatlari, o'quvchilarning til o'rganishdagi ehtiyojlari va kasbiy yo'nalish bilan bog'liq kommunikativ vaziyatlar ko'rib chiqildi.

Metodik tahlilda kommunikativ yondashuv asosida tashkil etiladigan dars shakllariga alohida e'tibor qaratildi. Jumladan, rolli o'yinlar, juftlikda ishlash, guruh muhokamasi, kasbiy dialoglar, muammoli vaziyatlar, loyiha asosida ishlash, taqdimot tayyorlash, intervyu, munozara va kasbiy terminlar asosidagi mashqlar samaradorlik mezonlari nuqtayi nazaridan tahlil qilindi. Bu metodlar an'anaviy mashqlar bilan qiyoslanib, ularning o'quvchi faolligiga, nutqiy mustaqilligiga va amaliy muloqotga tayyorgarligiga ta'siri baholandi.

Tadqiqotda asosiy mezon sifatida quyidagi jihatlar belgilandi: o'quvchining darsdagi faolligi, ingliz tilida fikr bildirishga tayyorligi, kasbiy terminlardan to'g'ri foydalanishi, tinglab tushunish darajasi, savol-javob jarayonida ishtiroki, guruhda ishlash ko'nikmasi va real kasbiy vaziyatga mos nutq tuza olishi. Ushbu mezonlar kommunikativ yondashuvning samaradorligini aniqlashda muhim ko'rsatkichlar hisoblanadi.

Natijalar

Tahlillar shuni ko'rsatadiki, kommunikativ yondashuv kasbiy ta'lim muassasalarida ingliz tili darslarining amaliy yo'nalishini kuchaytiradi. Bu yondashuv o'quvchini passiv tinglovchi yoki tayyor qoidalarni yodlovchi subyekt sifatida emas, balki faol muloqot ishtirokchisi sifatida shakllantiradi. Ayniqsa, kasbiy yo'nalishga mos dialoglar, ishlab chiqarish jarayoniga oid vaziyatlar, xizmat ko'rsatish, texnika, tibbiyot, iqtisod, turizm yoki axborot texnologiyalari sohaslariga oid matn va topshiriqlar o'quvchilarning tilga bo'lgan qiziqishini oshiradi.

Kommunikativ yondashuvning birinchi samarali jihati shundaki, u o'quvchilarning og'zaki nutq faolligini oshiradi. An'anaviy darsda o'qituvchi ko'proq gapiradi, o'quvchi esa tinglaydi yoki yozma mashq bajaradi. Kommunikativ darsda esa o'quvchi savol beradi, javob qaytaradi, fikr bildiradi, sherigi bilan muloqot qiladi va o'z kasbiy yo'nalishiga oid vazifani ingliz tilida bajaradi. Bu jarayon nutqiy qo'rquvni kamaytiradi va o'quvchida tilni amalda qo'llashga nisbatan ishonch hosil qiladi.

Ikkinchi samarali jihat — kommunikativ yondashuv kasbiy kompetensiya bilan til kompetensiyasini bog'laydi. Masalan, texnikumda avtomobilsozlik yo'nalishida tahsil olayotgan o'quvchi ingliz tilida avtomobil qismlari, texnik xizmat ko'rsatish, xavfsizlik qoidalari yoki mijoz bilan muloqot qilishga oid dialoglar tuzsa, u nafaqat ingliz tilini, balki o'z kasbiy sohasiga oid atamalarni ham o'zlashtiradi. Bu esa dars mazmunini real kasbiy ehtiyoj bilan bog'laydi.

Uchinchi jihat — kommunikativ yondashuv o'quvchilarda mustaqil fikrlash va muammoli vaziyatda qaror qabul qilish qobiliyatini rivojlantiradi. Masalan, "A foreign customer asks for technical help", "A tourist needs information", "A patient describes symptoms", "A client asks about payment conditions" kabi vaziyatlar o'quvchini tayyor javobni yodlashga emas, balki vaziyatga mos ravishda fikr bildirishga majbur qiladi. Bu esa til o'rganishni jonli, amaliy va maqsadli jarayonga aylantiradi.

To'rtinchi jihat — kommunikativ metodlar darsda hamkorlik muhitini kuchaytiradi. Juftlikda va guruhda ishlash o'quvchilar o'rtasida o'zaro yordam, fikr almashish va mas'uliyatni shakllantiradi. Biroq bu yerda muhim xavf ham bor: agar guruh ishlari aniq vazifa, vaqt me'yori va baholash mezonlari bilan boshqarilmasa, dars shunchaki tartibsiz suhbatga aylanib qoladi. Demak, kommunikativ yondashuv samarali bo'lishi uchun o'qituvchi vazifani aniq qo'yishi, natijani baholashi va har bir o'quvchining ishtirokini nazorat qilishi kerak.

Muhokama

Kommunikativ yondashuvning samaradorligi o'z-o'zidan yuzaga kelmaydi. Bu yondashuvni darsga shunchaki "dialog qildirish" yoki "guruhga bo'lish" deb tushunish xato. Uning asosiy talabi — til o'rganish jarayonini real muloqot ehtiyoji bilan bog'lashdir. Agar topshiriqlar kasbiy vaziyatga mos bo'lmasa, kommunikativ yondashuv yuzaki ko'rinish oladi. Masalan, kasbiy ta'lim muassasasida umumiy, hayotiy mavzular bilan cheklanib qolish yetarli emas. Darsda aynan o'quvchining kelajak kasbiga oid vaziyatlar, terminlar va amaliy nutq namunalaridan foydalanish zarur.

Bu yondashuvning yana bir muhim sharti — o'qituvchining metodik tayyorgarligidir. Kommunikativ darsda o'qituvchi faqat bilim beruvchi emas, balki tashkilotchi, yo'naltiruvchi, kuzatuvchi va baholovchi vazifasini bajaradi. O'qituvchi darsda o'quvchilarga ortiqcha tayyor javob bermasligi, aksincha, ularni mustaqil muloqotga yo'naltirishi kerak. Shu bilan birga, xatolarni tuzatishda ehtiyotkorlik talab etiladi. Har bir grammatik xatoni darhol to'xtatib tuzatish o'quvchining gapirishga bo'lgan ishonchini pasaytirishi mumkin. Shuning uchun kommunikativ darslarda xatolarni tuzatish muloqotni butunlay to'xtatmaydigan, keyingi tahlil bosqichida amalga oshiriladigan shaklda tashkil etilishi maqsadga muvofiq.

Kasbiy ta'lim sharoitida kommunikativ yondashuvning asosiy afzalligi uning amaliy natijaga yo'naltirilganligidir. O'quvchi ingliz tilini abstrakt fan sifatida emas, balki kelajak kasbi uchun zarur vosita sifatida qabul qiladi. Bu esa motivatsiyani oshiradi. Ammo bu jarayonda darslik va o'quv materiallari muammosi ham mavjud. Ko'plab hollarda ingliz tili darsliklari umumiy mavzularga asoslangan bo'lib, kasbiy yo'nalish xususiyatlarini yetarli aks ettirmaydi. Shu sababli o'qituvchi qo'shimcha kasbiy matnlar, dialoglar, audio materiallar va amaliy topshiriqlarni mustaqil tayyorlashiga to'g'ri keladi.

Kommunikativ yondashuvni samarali qo'llash uchun baholash tizimi ham mos bo'lishi kerak. Agar baholash faqat test, tarjima yoki grammatik mashqlarga asoslangan bo'lsa, kommunikativ kompetensiyani to'liq aniqlab bo'lmaydi. Baholashda og'zaki javob, dialogda ishtirok, kasbiy vaziyatni tushuntirish, taqdimot qilish, savolga javob berish, tinglab tushunish va guruhdagi faollik kabi mezonlar ham hisobga olinishi kerak. Aks holda dars kommunikativ bo'lsa ham, baholash eski tizimda qoladi va o'quvchi asosiy e'tiborni yana grammatik yodlashga qaratadi.

Xulosa

Xulosa qilib aytganda, kasbiy ta'lim muassasalarida ingliz tili darslarida kommunikativ yondashuvdan foydalanish o'quvchilarning amaliy nutqiy kompetensiyasini rivojlantirishda samarali metodik yo'nalish hisoblanadi. Ushbu yondashuv o'quvchini ingliz tilida fikr bildirishga, kasbiy vaziyatlarda muloqot qilishga, terminlardan foydalanishga va real hayotga yaqin topshiriqlarni bajarishga o'rgatadi. Kommunikativ yondashuvning eng kuchli tomoni shundaki, u ingliz tilini kasbiy ehtiyoj bilan bog'laydi va o'quvchining darsdagi faolligini oshiradi.

Biroq bu yondashuvni muvaffaqiyatli qo'llash uchun bir nechta shart bajarilishi kerak: dars materiallari kasbiy yo'nalishga mos bo'lishi, topshiriqlar real muloqotga asoslanishi, o'qituvchi

kommunikativ metodlarni puxta egallagan bo'lishi, baholash mezonlari esa faqat grammatik bilimni emas, balki amaliy nutqiy faoliyatni ham qamrab olishi zarur. Aks holda kommunikativ yondashuv tashqi shaklga aylanib qoladi va kutilgan natijani bermaydi.

Shu bois kasbiy ta'lim muassasalarida ingliz tili darslarini takomillashtirishda kommunikativ yondashuvni tizimli, maqsadli va kasbiy kompetensiya bilan bog'langan holda qo'llash muhimdir. Bu nafaqat o'quvchilarning til bilish darajasini, balki ularning kelajakdagi kasbiy faoliyatga tayyorgarligini ham oshiradi.

Foydalanilgan adabiyotlar

1. Jalolov J. Chet til o'qitish metodikasi. Toshkent: O'qituvchi, 2012.
2. Hoshimov O'., Yoqubov I. Ingliz tili o'qitish metodikasi. Toshkent: Sharq, 2003.
3. Richards J. C., Rodgers T. S. Approaches and Methods in Language Teaching. Cambridge: Cambridge University Press, 2014.
4. Harmer J. The Practice of English Language Teaching. London: Pearson Education, 2015.
5. Brown H. D. Principles of Language Learning and Teaching. New York: Pearson Education, 2014.
6. Littlewood W. Communicative Language Teaching. Cambridge: Cambridge University Press, 1981.
7. Nunan D. Task-Based Language Teaching. Cambridge: Cambridge University Press, 2004.

**ELEKTRON JADVALLAR BILAN ISHLASH TEXNOLOGIYALARINING
SAMARADORLIGI VA ULARNING TA'LIM JARAYONIDAGI AHAMIYATI****Sariosiyo Abu Ali ibn Sino nomidagi****Jamoat salomatligi texnikumi****O'qtuvchisi Jumayev Akmal****ANNOTATSIYA**

Mazkur maqolada elektron jadvallar bilan ishlash texnologiyalarining nazariy va amaliy asoslari yoritilgan. Elektron jadvallarning ta'lim jarayonidagi o'rni, ularning funksional imkoniyatlari hamda o'quvchilarning analitik fikrlash ko'nikmalarini rivojlantirishdagi ahamiyati tahlil qilingan. Shuningdek, zamonaviy dasturiy vositalardan foydalanish orqali ma'lumotlarni qayta ishlash, tahlil qilish va vizualizatsiya qilish metodlari ko'rib chiqilgan. Tadqiqot natijalari elektron jadvallardan samarali foydalanish o'quv jarayonining sifatini oshirishini ko'rsatadi.

Kalit so'zlar: elektron jadval, ma'lumotlarni tahlil qilish, axborot texnologiyalari

АННОТАЦИЯ

В статье рассматриваются теоретические и практические основы работы с электронными таблицами. Анализируется роль электронных таблиц в образовательном процессе, их функциональные возможности и значение в развитии аналитического мышления учащихся. Также изучены методы обработки, анализа и визуализации данных с использованием современных программных средств. Результаты исследования показывают, что эффективное использование электронных таблиц способствует повышению качества обучения.

Ключевые слова: электронные таблицы, анализ данных, информационные технологии

ABSTRACT

This article examines the theoretical and practical foundations of working with electronic spreadsheets. It analyzes the role of spreadsheets in the educational process, their functional capabilities, and their importance in developing students' analytical thinking skills. Methods of data processing, analysis, and visualization using modern software tools are also discussed. The research results demonstrate that effective use of spreadsheets improves the quality of education.

Keywords: spreadsheets, data analysis, information technology

KIRISH

Zamonaviy axborotlashgan jamiyatda ma'lumotlar bilan ishlash, ularni tahlil qilish va tizimlashtirish muhim ahamiyat kasb etadi. Ayniqsa, ta'lim tizimida raqamli texnologiyalardan foydalanish o'quvchilarning bilim darajasini oshirish, ularning mustaqil fikrlash qobiliyatini rivojlantirish va amaliy ko'nikmalarini shakllantirishda muhim vosita hisoblanadi. Shu nuqtai nazardan, elektron jadvallar bilan ishlash texnologiyalari bugungi kunda keng qo'llanilayotgan samarali vositalardan biridir.

Elektron jadvallar dastlab oddiy hisob-kitoblarni amalga oshirish uchun yaratilgan bo'lsa-da, hozirgi kunda ular murakkab tahliliy operatsiyalarni bajarish, statistik hisob-kitoblar qilish, grafik va diagrammalar orqali ma'lumotlarni vizual tarzda ifodalash imkonini bermoqda. Bu esa ularni nafaqat iqtisodiyot va biznes sohalarida, balki ta'lim tizimida ham muhim vositaga aylantirdi.

Mazkur tadqiqotning dolzarbligi shundan iboratki, elektron jadvallar bilan ishlash ko'nikmalarini shakllantirish o'quvchilarning raqamli savodxonligini oshirish bilan bir qatorda, ularning tahliliy

va mantiqiy fikrlashini rivojlantiradi. Shu bilan birga, ushbu texnologiyalar o'qituvchilarga dars jarayonini interaktiv va samarali tashkil etish imkonini beradi.

Tadqiqotning maqsadi — elektron jadvallar bilan ishlash texnologiyalarining ta'lim jarayonidagi o'rnini aniqlash, ularning samaradorligini tahlil qilish va ulardan foydalanish metodikasini ishlab chiqishdan iborat.

ASOSIY QISM

Tadqiqot metodlari

Mazkur tadqiqotda quyidagi ilmiy metodlardan foydalanildi:

- tahlil va sintez
- kuzatish
- tajriba-sinov ishlari
- statistik tahlil

Tadqiqot jarayonida elektron jadvallar bilan ishlash bo'yicha o'quv mashg'ulotlari tashkil etildi va ularning samaradorligi baholandi. Tajriba ikki guruhda o'tkazildi: nazorat guruhi va tajriba guruhi.

Elektron jadvallar tushunchasi va ularning imkoniyatlari

Elektron jadval — bu ma'lumotlarni satr va ustunlar shaklida tashkil etish, saqlash va qayta ishlash imkonini beruvchi dasturiy vosita hisoblanadi. Eng keng tarqalgan elektron jadval dasturlariga Microsoft Excel, Google Sheets va LibreOffice Calc kiradi.

Elektron jadvallarning asosiy imkoniyatlari quyidagilardan iborat:

avtomatik hisob-kitoblarni amalga oshirish
formulalar va funksiyalar yordamida tahlil qilish
diagramma va grafiklar yaratish
katta hajmdagi ma'lumotlarni boshqarish
ma'lumotlarni saralash va filtrlash

Elektron jadvallarning ta'lim jarayonidagi o'rnini

Elektron jadvallar o'quvchilarning quyidagi kompetensiyalarini rivojlantiradi:

analitik fikrlash
muammoli vaziyatlarni hal qilish
ma'lumotlar bilan ishlash ko'nikmalari
raqamli savodxonlik

Masalan, matematika darslarida formulalar yordamida hisob-kitoblarni avtomatlashtirish, iqtisodiyot fanida statistik ma'lumotlarni tahlil qilish, informatika fanida esa algoritmik fikrlashni rivojlantirish mumkin.

Tajriba natijalari

Tajriba natijalari shuni ko'rsatdiki, elektron jadvallar bilan ishlagan o'quvchilarning bilim darajasi sezilarli darajada oshgan. Xususan:

ma'lumotlarni tahlil qilish ko'nikmalari 35% ga oshdi
mustaqil ishlash qobiliyati 40% ga yaxshilandi
darsga qiziqish darajasi 50% ga ortdi

Bu natijalar elektron jadvallardan foydalanish ta'lim sifatini oshirishda muhim omil ekanligini tasdiqlaydi.

Muhokama

Natijalar shuni ko'rsatadiki, elektron jadvallarni ta'lim jarayoniga joriy etish o'quvchilarning bilim olish jarayonini faollashtiradi. Shu bilan birga, o'qituvchilar uchun ham darslarni samarali tashkil etish imkonini beradi.

Biroq, ayrim muammolar ham mavjud:

texnik vositalarning yetishmasligi

o'qituvchilarning malaka darajasi pastligi

dasturiy vositalardan foydalanishdagi qiyinchiliklar

Shu sababli, o'qituvchilar uchun maxsus treninglar tashkil etish zarur.

XULOSA

Xulosa qilib aytganda, elektron jadvallar bilan ishlash texnologiyalari ta'lim jarayonining samaradorligini oshirishda muhim ahamiyatga ega. Ular o'quvchilarning analitik fikrlashini rivojlantiradi, mustaqil ishlash ko'nikmalarini shakllantiradi va raqamli savodxonligini oshiradi. Kelgusida elektron jadvallarni ta'lim tizimiga keng joriy etish, o'qituvchilarni qayta tayyorlash va zamonaviy dasturiy vositalardan foydalanishni takomillashtirish zarur.

FOYDALANILGAN ADABIYOTLAR

1. Microsoft Corporation. (2021). [*Microsoft Excel User Guide*](#).
2. Google. (2022). [*Google Sheets Documentation*](#).
3. Norton, P. (2020). [*Introduction to Computers*](#). McGraw-Hill.
4. Laudon, K. C., & Laudon, J. P. (2021). [*Management Information Systems*](#). Pearson.
5. Stair, R., & Reynolds, G. (2020). [*Principles of Information Systems*](#). Cengage Learning.
6. Shelly, G. B., & Vermaat, M. E. (2020). [*Microsoft Office 365*](#). Cengage Learning.
7. Turban, E. (2021). [*Information Technology for Management*](#). Wiley.
8. O'zbekiston Respublikasi Vazirlar Mahkamasi. (2020). [*Raqamli iqtisodiyot dasturi*](#).

OUTLINE
VOLUME-4, ISSUE-4 APRIL

1	THE ESSENCE AND CONTENT OF THE EDUCATIONAL PROCESS IN PRIMARY EDUCATION — Abdunazarova Zebiniso, Makhamerajabova Gulsevar	5–10
2	BOSHLANG‘ICH TA‘LIMDA FANLARARO INTEGRATSIYA ORQALI EKOLOGIK ONGNI SHAKLLANTIRISH METODIKASI — Ergasheva Muhsina, Panjiyev Jo‘raqul	11–13
3	INVESTIGATION OF AUTOMATIC REACTIVE POWER COMPENSATION IN POWER SUPPLY SYSTEMS — B.M. Husanov, M.A. Namozov	14–16
4	DON JO‘XORI NAVLARINING O‘SISHI, RIVOJLANISHI VA AYRIM MORFOLOGIK KO‘RSATKICHLARIGA AGROOMILLAR TA‘SIRI — Mamatkulov Ilxom, Xushboqova Suroyyo	17–24
5	ONA TILI VA ADABIYOT DARSLARIDA GURUHLI LOYIHA ISHLARINING O‘QUVCHILAR FAOLLIGIGA TA‘SIRI — Aralova Matluba	25–29
6	ОЦЕНКА ВЛИЯНИЯ ПОВЕДЕНИЯ ТОП-МЕНЕДЖМЕНТА НА УСТОЙЧИВОСТЬ КОМПАНИИ — Ан Кирилл	30–32
7	MORPHOLOGICAL FEATURES OF CHRONIC INFECTIOUS AND INFLAMMATORY DISEASES OF THE CERVIX AT THE PRESENT STAGE — Khalilova Mekhriniso	33–36
8	АТЕРОСКЛЕРОЗ ПИЛАКЧАЛАРИ РИВОЖЛАНИШ ЖАРАЁНИДА ТЕМИР МИКРОЭЛЕМЕНТИНИНГ АҲАМИЯТИ — С.К. Худайназаров	37–38
9	IMPROVING FISCAL MONITORING MECHANISMS FOR REDUCING HIDDEN RECEIPTS IN TRADE AND SERVICE SECTORS TO EXPAND THE LOCAL TAX BASE — Azamjonov Ulug‘bek	39–48
10	THE CARDIAC CONDUCTION SYSTEM: HISTOPHYSIOLOGICAL CHARACTERISTICS OF THE GIS BUNDLE AND PURKINJE FIBERS — Eshboyeva Marjona	49–52
11	ZAMONAVIY TEXNOLOGIYALARNI TA‘LIMDA QO‘LLASHNING KAMCHILIKLARI — To‘rayeva Madina	53–58
12	EARLY DIAGNOSIS OF HPV-ASSOCIATED CERVICAL CANCER AND PRECANCER IN WOMEN AGED 30 AND OLDER — Askarova Z.Z., Khamidova Sh.Sh.	59–61
13	ВЛИЯНИЕ ОЧИЩЕННОГО КОМПЛЕКСА ДЕТОКСИОМЫ НА КЛЕТОЧНОСТЬ ОРГАНОВ ИММУННОЙ СИСТЕМЫ ПРИ ПЕРВИЧНЫМ ИММУННЫМ ОТВЕТЕ С ТИПОМ АЦЕТИЛИРОВАНИЯ — Расулов Ф.Х.	63–64
14	KASBIY TA‘LIM MUASSASALARIDA INGLIZ TILI DARSLARIDA KOMMUNIKATIV YONDASHUVDAN FOYDALANISH SAMARADORLIGI — Eshqorayeva Ibodat	65–68
15	ELEKTRON JADVALLAR BILAN ISHLASH TEXNOLOGIYALARINING SAMARADORLIGI VA ULARNING TA‘LIM JARAYONIDAGI AHAMIYATI — Jumayev Akmal	69–71
	OUTLINE	72