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PEDAGOGICAL AND PSYCHOLOGICAL FEATURES AND ANALYSIS OF PROBLEMS IN THE IMPLEMENTATION OF THE CREDIT MODULE SYSTEM IN MEDICAL HIGHER EDUCATION INSTITUTIONS

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Abstract:
This article presents the current status and main features and advantages of the implementation of the credit module system in medical higher education institutions at the national level, as well as the existing problems, shortcomings in the implementation process and practical proposals for their solution.

Keywords: Credit module, medical education, competency-based approach, modularization, interdisciplinary integration, elements of modern education.

Аннотация:
В статье рассматриваются современное состояние, основные особенности и преимущества внедрения кредитно-модульной системы обучения в медицинских высших учебных заведениях на национальном уровне, а также существующие проблемы и недостатки в процессе ее внедрения и практические предложения по их решению.

Annotatsiya:
Ushbu maqolada, kredit modul tizimini milliy darajada tibbiy oliy ta’lim muassalarida tatbiq etishning amaldagi holati va asosiy xususiyatlari, avzalliklari shu bilan birgalikda tadbiq qilish jarayonidagi mavjud muammolar, kamchiliklar va ularning yechimi sifatida amaliy takliflar beriladi.

Kalit so‘zlar: kredit modul, tibbiyot ta’limi, kompetensiyaviy yondashuv, modullashtirish, fanlararo integratsiya, zamonaviy ta’lim elementlari.

Ключевые слова: кредитный модуль, медицинское образование, компетентностный подход, модуляризация, междисциплинарная интеграция, элементы современного образования.

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Introduction

Modernizing the higher education system and aligning it with international educational standards is one of the most urgent tasks today. The credit-module system is an important component of the reform of the higher education system in the Republic of Uzbekistan, and its significance is especially increasing in medical education. The implementation of this system implies the transition of the educational process from the traditional "teacher-centered" model to a "student-centered" and "outcome-based" model.The introduction of the credit-module system in medical education has its own specific complexities, as it requires not only the acquisition of theoretical knowledge but also the development of practical skills, as well as the ability to make correct decisions in emergency situations. It should be noted that large-scale reforms aimed at developing the spheres of education and science and organizing education on the basis of world standards have been consistently implemented under the leadership of the head of our state. In particular, the Resolution of the President of the Republic of Uzbekistan "On Approval of the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030" serves as an important foundation for these reforms.[1]English translation:According to the Presidential Decree of the Republic of Uzbekistan No. PF-5847, the "Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030" defines a number of specific tasks. These include the introduction of digital technologies and modern teaching methods into higher education processes, the broad involvement of young people in scientific activities, and the gradual transition of the educational process in higher education institutions to a credit-module system.Based on international experience, the concept also aims to introduce advanced standards of higher education, including a gradual transition in educational programs from a system focused primarily on theoretical knowledge to a system aimed at developing practical skills. Furthermore, it provides for the development of mechanisms for converting higher education institutions' curricula to the credit-module system and the phased implementation of this system. It also emphasizes increasing the share of practical classes in specialized subjects aimed at improving students' practical competencies.This commitment is further strengthened by the ambitious goal of transferring 85 percent of higher education institutions to the credit-module system by 2030, including the transition of 33 higher education institutions to this system as early as the 2020/2021 academic year.

In the context of the rapid development and globalization of education, medical higher education institutions are also facing the need to continuously adapt and improve their educational programs. From this perspective, the credit-module system is considered one of the main tools of modernization aimed at improving the quality and pedagogical effectiveness of training future medical specialists.

[1] O'zbekiston Respublikasi oliy ta'lim tizimini 2030 yilgacha rivojlantirish konsepsiyasini tasdiqlash to'g'risida O'zbekiston Respublikasi Prezidentining 08.10.2019 yildagi 5847-son Farmoni.

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Main Part

A thorough analysis of the multi-level regulatory and legal framework for the implementation and pedagogical development of the credit-module system in the higher education system of the Republic of Uzbekistan shows that the introduction of the credit-module system is not merely an administrative or structural reform, but rather represents a fundamental pedagogical reorientation of the higher education landscape.This regulatory and legal framework encourages the transformation of students into active participants in the educational process, granting them the right to choose and manage their educational trajectories. This, in turn, not only increases students' activity and responsibility but also serves as an important guarantee for the protection of their rights.As a result, the education system of Uzbekistan is being structured as an integrated and interconnected system aimed at training modern and highly qualified specialists, ensuring transparency and effectiveness in the educational process, and achieving international recognition and rankings. This process serves as an important factor in strengthening socio-economic development and preparing a new generation of globally competitive professionals.

The credit-module system is a system that divides the educational process into modules and serves to adapt education to a competency-based approach by defining clear learning outcomes, credit volumes, and assessment criteria for each module.The widespread implementation of this system in medical higher education institutions is aimed at improving the quality of education and creating opportunities for accurately measuring students' competencies. It also enhances the training of specialists who meet international standards and possess practical skills and clinical thinking abilities. In the context of Uzbekistan, this system has currently become one of the key elements of educational reforms.

Regulatory and Legal Framework

Regulatory and legal documents developed by the Cabinet of Ministers of the Republic of Uzbekistan, the Ministry of Higher Education, Science and Innovation, and the Ministry of Health (including sectoral regulations and official orders) serve as the main normative basis for implementing the credit-module system in medical higher education institutions.These documents are aimed at defining the minimum requirements of the module system, types of assessment and final attestation, procedures for credit calculation, evaluation criteria, and the organization of practical training. Through these regulatory documents, educational institutions take into account unified principles when developing module-based curricula. Such a legal framework contributes to the introduction of unified principles and standards in the educational process.

Module Implementation Practice

In many medical higher education institutions, curricula are divided into modules, with clearly defined learning outcomes and competencies for each module. The effectiveness of educational outcomes is enhanced through interdisciplinary integration of modules. For example, in technical fields, this may involve combining elements of electrical engineering, ecology, and

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economics, whereas in medical education, it involves integrating fundamental and clinical knowledge. This approach helps to connect theoretical knowledge with practical skills.At the same time, it is necessary to coordinate the study load, contact hours, and independent work within each module. Interdisciplinary integration is an essential component of modern education, especially in professional fields. This approach not only strengthens the scientific foundation of the discipline but also develops students' competencies in independent logical thinking and decision-making.

Assessment and Quality Control

Within the framework of the credit-module system, both formative (during the module) and summative (at the end of the module, OSCE, state exams) assessment methods are being widely implemented. In medical education, OSCEs, portfolios, clinical observation, and simulation-based exams are considered effective tools for the objective evaluation of practical skills.In recent years, medical higher education institutions have increasingly focused on assessing practical exams and clinical competencies. A clear example of such efforts is the initiative by the Ministry of Health of the Republic of Uzbekistan, titled "On the Implementation of the National System for Two-Stage Independent Assessment of Knowledge and Certification of Competencies of Students in Medical Higher Education Institutions."[2]English translation:Based on this decree, graduates' knowledge is assessed in two stages—fundamental and clinical-practical skills—through a qualification exam to determine their compliance with the requirements for practicing in a specific medical or pharmaceutical specialty. Such student assessment systems further enhance the quality of education and ensure that the process of training graduates becomes more effective in preparing qualified specialists capable of providing modern medical services that meet international standards.

Infrastructure and Resources

The effective implementation of the credit-module system is directly dependent on the availability of resources. Elements of modern education—such as simulation centers, virtual laboratories, advanced information and communication technologies, and clinical mentors—enrich the educational process and facilitate the introduction of new teaching methods. Well-planned clinical training enables the development of students' competencies in a stable, measurable, and accreditable manner.

Advantages of the Credit-Module System

The credit-module system makes the educational process more meaningful, as it helps implement a competency-based approach in a more effective and adaptable manner. The main features of this system include:

[2]O‘zbekiston Respublikasi Sog‘liqni saqlash vazirligining 2025-yil 21-fevraldagi №49-son "Tibbiyot oliy ta'lim muassasalari talabalarining bilimlarini ikki bosqichli mustaqil baholash va ularning malaksini tasdiqlash milliy tizimi joriy etish to‘g‘risida" gi buyrug‘i.

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★ Modular structure: Dividing the curriculum into modules allows students to study independently and manage their time, creating opportunities for individualized learning.
- Student autonomy: Students can choose the modules they need and shape their own learning process, aligning it with their personal interests and professional goals.

★ Analysis and assessment: The credits assigned to each module provide clear information about students' learning progress, achieved outcomes, and practical skills, assisting future employers in evaluating their potential.
★ Variety of assessment methods: Tools such as OSCE, portfolios, and course projects help measure clinical competencies more accurately.
★ Interactive teaching methods: The credit-module system enables the use of interactive teaching methods that encourage communication, collaboration, and creative thinking among students.
★ Alignment with standards: The system supports flexibility in meeting both national and international educational standards.
★ Competency development: By implementing a competency-based approach, the system enhances graduates' practical abilities and readiness for professional practice.

English translation:
The credit-module system, taking into account the main principles of student-centered education and competency-based approaches, serves to develop the educational process more effectively and appropriately. This approach allows students to acquire not only theoretical knowledge but also social and practical skills, helping them succeed in their future workplaces. At the same time, teachers play a crucial role in this process, guiding students by providing support and encouragement.Through this system, students actively and responsibly participate in the learning process, expand their capabilities, and achieve personal development.
Preliminary observations in our study indicate that, in the effective implementation of the credit-module system, certain aspects are being carried out, but there are also key challenges in increasing its efficiency, including: teachers' methodological preparedness, insufficient infrastructure, and inconsistencies related to students' adaptation to the system.

Existing Problems and Shortcomings
Inefficient use of resources: There is a lack of simulators and training rooms, limited availability of spaces and mentor resources for clinical internships, and integration of electronic assessment systems (such as Moodle or other LMS platforms) has not been widely implemented across all institutions. Additionally, virtual laboratories are not yet fully established. These limitations hinder the full practical implementation of the module content.

Teachers' Methodological Preparedness
For the successful implementation of the credit-module system, teachers' methodological and didactic preparedness is crucial. In practice, many instructors lack regular experience in applying new competency-based assessment methods, simulation and clinical training (using

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mannequins and simulators), or interactive teaching methods such as CBL (Case-Based Learning) and PBL (Problem-Based Learning). To address this, it is necessary to establish professional development programs, pedagogical seminars and training sessions, as well as motivational mechanisms to support and enhance teachers' skills.

Student Responsibility and Adaptation

The credit-module system requires students to engage in independent learning, manage their time effectively, and perform self-assessment. Many students initially experience difficulties adapting to these requirements, including issues such as excessive workload, lack of motivation, unfamiliarity with effective learning strategies, and insufficient skills for independent study.

Overall Analysis

Overall, the analysis indicates that the credit-module system holds significant potential in medical higher education, and its effective implementation can substantially improve the quality of education. However, a number of challenges related to pedagogical, methodological, infrastructural, and regulatory aspects currently exist, which may hinder the efficient application of this system in practice.

Key Aspects to Be Developed and Recommendations

1. Aligning regulatory documents with practical mechanisms: Institutions should develop clear strategic plans internally, and regulations and guidelines need to be reviewed and adapted accordingly.
2. Competency maps and module objectives: For each module, learning outcomes, assessment indicators, and competency maps should be developed, ensuring interdisciplinary integration.
3. Standardizing assessment: The validity and reliability of assessments can be enhanced by implementing OSCE stations and evaluator training programs.
4. Infrastructure investments: Simulation centers, clinical practice bases, and IT platforms should be gradually developed and improved.
5. Teacher training for credit-module methods: Pedagogical professional development courses, seminars, and workshops should be conducted step by step, along with expanded mentoring and experience-sharing programs.
6. Student support: Implement adaptation courses, training on time management and learning strategies, and a mentoring system to support students' adjustment to the credit-module system.
7. Monitoring and quality indicators: Systematic monitoring should be conducted using KPIs such as OSCE scores, module final grades, student and teacher feedback, and graduate employment. However, in practice, gaps often exist between institutional mechanisms and the formal requirements of these indicators.

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Conclusion

The analysis of the current state of the credit-module system in medical higher education institutions presented in this article shows that the credit-module system is a significant reform in Uzbekistan aimed at modernizing medical education, improving its quality, aligning it with international standards, and strengthening the professional preparedness of graduates. The implementation of the credit-module system in medical higher education institutions represents an important step toward making Uzbekistan's education system globally competitive. This system provides students with a high degree of flexibility, opportunities for specialization, and the ability to thoroughly develop practical skills.However, to fully and effectively implement the system, it is necessary to address the challenges outlined above, including continuous teacher training, strengthening the material and technical base, regularly updating curricula, and establishing student support mechanisms. Considering the opinions of practicing physicians and representatives of the healthcare system is crucial for ensuring that graduates' competencies align with professional practice. A step-by-step approach, combined with analysis of the results at each stage, ensures the successful development of the system.

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