THEORETICAL AND METHODOLOGICAL FOUNDATIONS OF DESIGNING AN INDIVIDUAL EDUCATIONAL TRAJECTORY IN HIGHER MEDICAL EDUCATION

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Abstract.
This thesis highlights the theoretical and methodological foundations of designing an individual educational trajectory in higher medical education. It analyzes the pedagogical essence, content, and structural components of the concept of an individual educational trajectory, as well as the didactic features of organizing personalized and adaptive learning in medical education. In addition, the thesis scientifically substantiates modern trends in organizing the individual learning activities of medical students in a digital educational environment, as well as the pedagogical potential of using artificial intelligence and learning analytics. The study emphasizes the complexity of medical education, the close relationship between theoretical knowledge and clinical practice, and the need to take into account students' individual needs, level of preparation, and professional development goals. The design of an individual educational trajectory is interpreted as a complex methodological process that integrates pedagogical diagnostics, digital technologies, adaptive methodology, learning analytics, and the capabilities of artificial intelligence.

Keywords: individual educational trajectory, higher medical education, personalized learning, adaptive learning, digital educational environment, artificial intelligence, learning analytics, pedagogical diagnostics, clinical thinking, professional competence.

In the modern higher education system, the growing emphasis on a student-centered approach, the need to develop independent thinking and professional competencies in the educational process, as well as the necessity of individualizing learning outcomes require the study of the concept of an individual educational trajectory as a scientific and pedagogical problem. An individual educational trajectory is a path of educational development designed on the basis of a student's personal needs, interests, level of knowledge, professional goals, pace of learning, intellectual abilities, and future professional field of activity. Unlike the traditional principle of "one educational path for all," this concept implies the organization of each student's unique learning activity and the selection of appropriate educational content, methods, tools, and assessment mechanisms.

The pedagogical essence of an individual educational trajectory lies in the fact that it contributes to the formation of the student not as a passive participant in the educational process, but as an active subject who consciously determines his or her own path of development, sets goals, selects learning resources, and analyzes his or her own results. In this process, the teacher acts not only as a provider of knowledge, but also as a consultant, guide, diagnostician, mentor, and designer of the educational process. Thus, an individual educational trajectory expresses the close interconnection between the student, the teacher, educational content, the digital environment, and the assessment system within the pedagogical process.

In terms of content, an individual educational trajectory consists of several structural components. The first component is the diagnostic component, through which the student's initial level of knowledge, learning needs, professional interests, difficulties in mastering the material, and individual capabilities

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are identified. The second component is the goal-oriented component, in which the student's short-term and long-term educational goals are determined. The third component is the content component, which involves the selection of necessary learning materials, modules, topics, practical assignments, and areas of independent study for the student. The fourth component is the technological and methodological component, which includes teaching methods, digital tools, interactive platforms, simulation-based training, case studies, and forms of working with clinical situations. The fifth component is the assessment and reflection component, in which the student's results are regularly evaluated, self-analysis is carried out, shortcomings are identified, and further directions of development are determined.

In the context of higher medical education, an individual educational trajectory is of particular importance. This is because medical education requires the integration of theoretical knowledge, practical skills, clinical thinking, professional responsibility, bioethics, communicative competence, and a culture of continuous self-development. Each medical student does not master anatomical, physiological, clinical, diagnostic, and practical knowledge at the same pace. Some students may quickly grasp theoretical material but may experience difficulties in making decisions in clinical situations. Other students may be active in practical skills but may need additional support in scientific and theoretical analysis. Therefore, designing an individual educational trajectory in medical education makes it possible to identify the student's real needs and organize learning activities that correspond to them.

One of the important features of an individual educational trajectory is its dynamic nature. In other words, the trajectory is not designed once and then left unchanged. It is regularly updated on the basis of the student's learning outcomes, clinical skills, independent work activity, test results, participation in practical classes, and learning analytics data. This makes the educational process flexible, result-oriented, and personalized. From this point of view, an individual educational trajectory is considered a complex methodological system that integrates pedagogical design, diagnostics, monitoring, analysis, and reflection.

The organization of personalized and adaptive learning in higher medical education is currently one of the important directions for improving the quality of education. Personalized learning means organizing the educational process in accordance with a student's individual needs, abilities, level of preparation, and professional goals. Adaptive learning, in turn, refers to the adjustment of educational content, the complexity of assignments, recommended resources, and assessment methods based on the student's learning outcomes, responses, mistakes, pace of mastery, and activity. These two approaches are closely interconnected and serve to gradually develop students' theoretical knowledge, clinical reasoning, and practical skills in medical education.

The didactic feature of medical education is that knowledge is not limited to the memorization of theoretical concepts. A student must be able to apply acquired knowledge in a clinical situation, analyze the patient's condition, identify relationships between symptoms, think diagnostically, and make well-grounded decisions regarding treatment and prevention. Therefore, in higher medical education, personalized learning must take into account not only the student's level of knowledge, but also clinical thinking, communicative ability, professional ethics, practical skills, and the ability to make independent decisions.

A diagnostic approach is of great importance in organizing personalized learning. Without identifying each student's initial level of preparation, it is difficult to develop an appropriate individual educational path. Diagnostics may be carried out through tests, interviews, practical assignments, clinical cases, indicators of activity on an electronic platform, and learning analytics. For example, a student who has poorly mastered certain topics in anatomy or physiology may be recommended additional multimedia

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resources, 3D models, revision assignments, and short assessment tests. In clinical disciplines, individual exercises may be provided based on case analysis, simulation-based training, and problem-based situations related to the analysis of a patient's condition.

The didactic potential of adaptive learning lies in its ability to change the educational process automatically or semi-automatically in accordance with the student's learning activity. If a student has mastered a particular topic well, he or she is given more complex assignments, clinical cases, or research-oriented tasks. If a student makes many mistakes, the system recommends reviewing the topic, additional explanations, video lessons, tests, or teacher consultation. Such an approach helps the student learn at an individual pace, identify gaps in knowledge in a timely manner, and eliminate them.

In order to effectively organize personalized and adaptive learning in higher medical education, it is advisable to develop educational materials based on the modular principle. Each module should include a clear goal, expected outcome, main theoretical material, practical assignment, clinical case, control questions, tests, and independent learning resources. Such a structure helps the student build his or her own trajectory step by step. The modular approach is especially important in medical education, since there is a strong interconnection between disciplines. For example, anatomy, physiology, pathology, pharmacology, and clinical sciences are mastered in a logically connected manner. An individual trajectory should be designed with this interconnection in mind.

From a didactic point of view, personalized learning also places new demands on the teacher's activity. The teacher does not limit himself or herself to giving the same assignment to all students, but applies a differentiated approach based on their level of mastery, interests, and needs. In this process, the teacher provides consultation, guidance, develops individual assignments, analyzes results, and, when necessary, modifies the educational trajectory. In addition, personalized and adaptive learning develops in students such qualities as responsibility, independent learning, self-assessment, and aspiration for professional development.

References.

1. Decree of the President of the Republic of Uzbekistan "On Approval of the Digital Uzbekistan – 2030 Strategy and Measures for Its Effective Implementation." – Tashkent, 2020.
2. Decree of the President of the Republic of Uzbekistan "On Approval of the Concept for the Development of the Public Education System of the Republic of Uzbekistan until 2030." – Tashkent, 2019.
3. Abduqodirov A.A., Pardaev A.X. Information Technologies and Informatization of the Educational Process. – Tashkent, 2012.
4. Kenjabayev A.T., Ikramov M.M., Allanazarov A.Sh. Information Systems and Technologies. – Tashkent: Iqtisodiyot, 2017.
5. G'ulomov S.S., Begalov B.A. Informatics and Information Technologies. – Tashkent: Fan, 2010.

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