



PEDAGOGY FORMATION OF THE LEARNING PROCESS IN HIGHER EDUCATIONAL INSTITUTIONS ON THE BASIS OF INDIVIDUAL EDUCATIONAL TECHNOLOGIES

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Abstract

This article explores the scientific and practical foundations of organizing the educational process in pedagogical higher education institutions based on individual learning technologies. It analyzes the mechanisms of forming students' individual learning trajectories, including self-awareness, self-assessment, design, forecasting of development points, and the application of newly acquired knowledge in practice. The study highlights the concepts of Individual Learning Content (ILC), Individual Learning Levels (ILL), and Individual Learning Trajectory (ILT), emphasizing their integration as a key factor in enhancing the effectiveness of modern education. The research findings propose recommendations for developing students' personalized learning pathways, implementing reflective evaluation, and improving the overall quality of education.

Keywords: Individual learning technologies, learning trajectory, individual learning content, learning levels, reflective assessment, self-development, digital learning environment.



**PEDAGOGIKA OLIY TA'LIM MUASSASALARIDA O'QUV
JARAYONINI INDIVIDUAL TA'LIM TEXNOLOGIYALARI ASOSIDA
SHAKLLANTIRISH**

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Annotatsiya:

Ushbu maqolada pedagogika oliy ta'lim muassasalarida o'quv jarayonini individual ta'lim texnologiyalari asosida tashkil etishning ilmiy-nazariy va amaliy jihatlari yoritilgan. Talabaning individual ta'lim trayektoriyasini shakllantirish jarayonida o'z-o'zini anglash, baholash, loyihalash, rivojlanish nuqtalarini oldindan ko'ra bilish va yangi bilimlarni amaliyotda qo'llash mexanizmlari tahlil qilingan. Shuningdek, individual ta'lim kontenti (ITK), individual ta'lim darajalari (ITD) va individual ta'lim trayektoriyasi (ITT) tushunchalari hamda ularning o'zaro integratsiyasi orqali zamonaviy ta'lim tizimining samaradorligini oshirish yo'llari asoslab berilgan. Tadqiqot natijalari talabalarning o'quv jarayonida shaxsiy rivojlanish trayektoriyalarini ishlab chiqish, refleksiv baholashni yo'lga qo'yish hamda ta'lim sifatini yaxshilashga qaratilgan takliflarni o'z ichiga oladi.

Kalit so'zlar: individual ta'lim texnologiyalari, ta'lim trayektoriyasi, individual ta'lim kontenti, individual ta'lim darajalari, refleksiv baholash, o'z-o'zini rivojlantirish, raqamli ta'lim muhiti.

**ФОРМИРОВАНИЕ ПЕДАГОГИКИ ПРОЦЕССА ОБУЧЕНИЯ В
ВЫСШИХ УЧЕБНЫХ ЗАВЕДЕНИЯХ НА ОСНОВЕ
ИНДИВИДУАЛЬНЫХ ОБРАЗОВАТЕЛЬНЫХ ТЕХНОЛОГИЙ**

Аннотация:

В данной статье раскрыты научно-теоретические и практические основы организации учебного процесса в педагогических вузах на основе



индивидуальных образовательных технологий. Проанализированы механизмы формирования индивидуальной образовательной траектории студента, включая самопознание, самооценку, проектирование, прогнозирование точек развития и применение новых знаний на практике. Освещены понятия индивидуального образовательного контента (ИОК), уровней индивидуального обучения (ИУО) и индивидуальной образовательной траектории (ИОТ), а также их интеграция в целях повышения эффективности современного образовательного процесса. Результаты исследования направлены на разработку индивидуальных траекторий профессионального роста студентов и совершенствование качества образования.

Ключевые слова: индивидуальные образовательные технологии, образовательная траектория, индивидуальный контент, уровни индивидуального обучения, рефлексивная оценка, саморазвитие, цифровая образовательная среда.

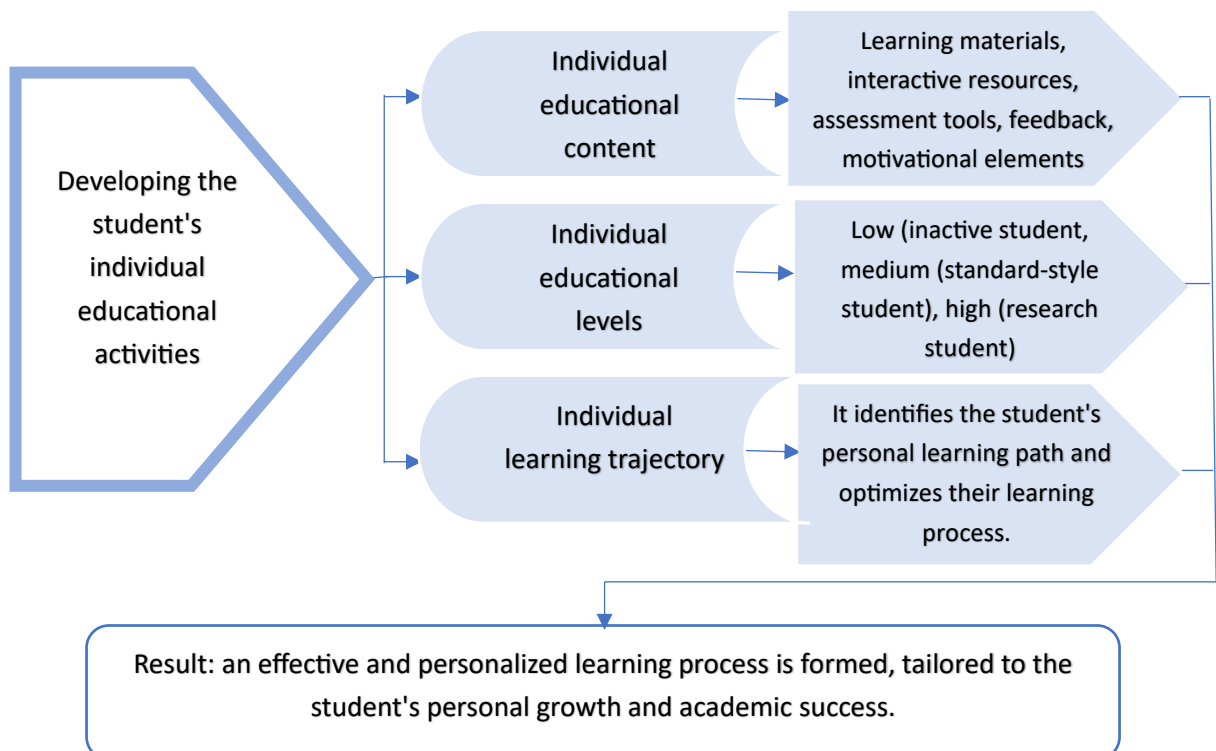
Introduction

According to the Law of the Republic of Uzbekistan “On Education” No. O‘RQ-637 dated September 23, 2020, and in order to implement the priority tasks set forth in Presidential Decree No. PF-60 “On measures to bring the field of information and communication technologies to a new stage in 2022–2023,” approved by Presidential Resolution No. PQ-357 dated August 22, 2022, the process of integrating modern pedagogical and information technologies more widely into the educational system is being further accelerated. This creates opportunities to equip professors and teachers with advanced pedagogical knowledge and technologies, enhance their professional skills, thoroughly study the experience of foreign higher education institutions, and introduce their effective methods and tools into the national education system.

In our scientific research, when developing individual learning trajectories and organizing the teaching of students accordingly, we rely on complex psychological and pedagogical diagnostic data. These data help to reveal the actual state of the formation level of professional competence and the

development level of the personal characteristics of students in pedagogical higher education institutions.

For the development of the organization of a student's individual educational activity, the following are necessary:



1.1- Pic. Organization of individual educational activities of the student

In pedagogical higher education institutions, when organizing educational activities based on individual learning technologies, students determine their own individual learning content through personalized learning levels. To implement a differentiated education system in higher education institutions, each student must have a unique individual pathway — a learning trajectory tailored to the development of their knowledge.

The development of modern students' educational activity based on individual learning technologies includes the formation of individual learning content (ILC), individual learning levels (ILL), and an individual learning trajectory (ILT). In the process of developing student activity in education, identifying the necessary



stages for self-development and determining the learning directions that should be prioritized for enhancement is of great methodological importance.

Literature review. The application of individual learning technologies in pedagogical higher education institutions is aimed at delivering an educational process adapted to the personal needs of students. Taking this into account, we turn to what is meant by individual learning content and individual learning levels, and how they are applied in educational practice. Individual learning content refers to a personalized set of learning materials and resources formed according to the student's educational needs, knowledge level, abilities, and personal development goals. In pedagogy, ILC supports the organization of a student's unique learning process and creates conditions for deeper knowledge acquisition.

International scholars have emphasized the importance of ILC. For example, J. Hattie [3] studied the role of personalized learning materials in increasing learning effectiveness and confirmed their positive impact on educational outcomes. Uzbek researcher A. Raufbekov [111] also highlights the role of ILC in enhancing students' academic performance and emphasizes its contribution to increasing student engagement in the learning process.

Individual learning levels are differentiated stages of learning developed according to students' personal needs, capabilities, and learning pace. Each level provides specific learning materials and methodologies that support successful progression throughout the educational process. ILL is critical for effectively organizing and evaluating the learning process. These concepts are widely studied in academic research and supported by theoretical foundations. For example, B. S. Bloom [4] created Bloom's Taxonomy to classify educational goals and assess learning outcomes. His work "Taxonomy of Educational Objectives: The Classification of Educational Goals" serves as a foundational source in defining learning levels. The taxonomy differentiates lower- and higher-order thinking skills and outlines how each should be assessed and developed.

Uzbek scholars have also made notable contributions in this area. T. Djumaniyozov [5], in his research, explains in detail how ILL enhances students' success in the learning process. He emphasizes the importance of defining



appropriate levels to ensure effective organization and examines practical ways to implement them. His findings show how ILL improves student achievement and learning outcomes and what strategies are required for effective application. These studies and theoretical foundations provide crucial knowledge and practices for the effective application of ILL. Bloom's taxonomy and Djumaniozov's research offer a comprehensive understanding of how learning levels are structured and their role in the educational process.

The individual learning trajectory is a unique, conscious, and experience-based developmental path through which a learner realizes their personal potential, professional growth, and self-expression within the educational process. An ILT is a strategically planned and step-by-step educational route designed for the learner to achieve their personal goals.

According to research by B. J. Zimmerman [7], self-regulation and planning strategies play a critical role in the successful implementation of ILTs, offering a comprehensive analysis of their role in effective learning experiences. His findings emphasize the importance of goal planning, time management, and effective strategy development in achieving personal learning success.

Research conducted by Uzbek scholar A. A. Ibragimov [8] demonstrates the practical significance of ILTs in organizing an effective learning process and creating personalized learning pathways. His studies explain how ILTs can be effectively organized according to individual needs and goals. The research provides detailed insights into the role of ILTs in improving the learning process and the practical approaches required for their success.

Furthermore, discussions have been made on modernizing the teacher professional development system based on multi-vector approaches, optimal use of system resources, flexible selection of training formats according to professional needs and individual characteristics, and creating favorable conditions for self-development and independent learning. The research elaborates on the didactic potential of scientific-methodological supervision, organizing cooperation among learning subjects, developing modular professional training content, strengthening productive interaction, systematizing functional roles, levels of individualization in professional development



(individual programs, routes, trajectories), designing ILTs, and creating and implementing a professional development roadmap for teachers.

Research methodology. The analysis of the obtained data confirms the importance of self-regulation, planning, and needs-based strategies in successfully implementing ILTs and achieving high educational outcomes. The theoretical and practical aspects of ILTs play a crucial role in helping students clearly define their personal development pathways and enhance the overall efficiency of the educational process.

As a result, the integration of the three components forms a system that supports personal development and ensures the effective use of individual learning technologies in the modern education system. This contributes to the optimization and improvement of the learning process.

To develop an individual learning trajectory in pedagogical higher education institutions, special attention is given to the following:

Understanding the extent of educational needs	•Determining the student's learning goals.
To be evaluated	•Objective analysis of results.
Design	•Goal-oriented planning process.
Anticipating development points	•Identify potential growth opportunities.
Processing and applying new knowledge in practice	•Integrating theory into practice

Figure 1. Creating an individual educational trajectory in pedagogical higher education institutions



In order to create an individual educational trajectory in pedagogical higher education institutions, a student must have the skills to understand the extent of his educational needs, assess them, plan, anticipate development points, and process and apply new knowledge in practice.

1. Before a student can create his own educational trajectory, he must understand the extent of his educational needs. Because a student who does not recognize his needs and does not know what his needs are aimed at may find it difficult to move along an individual educational trajectory or to understand it for the student himself.

2. Be able to evaluate one's own actions - when evaluating not only oneself, but also the student's knowledge and skills, one needs to compare and contrast the assessments of those around him in social situations, in professional activities, and to understand to what extent the assessment he gives himself is high or low and how it corresponds to their assessments. Because a person's self-esteem is always high, and the higher his self-esteem determines his success. As a result, the student can evaluate his own actions.

3. Designing the student's self-development - this means drawing up a certain sequence of actions based on his needs, setting a time frame, and designing his educational trajectory based on the desired goal.

4. Be able to foresee development points - for this, the student also needs the ability to evaluate his own behavior or predict the future. This is very important for accurately predicting future development, that is, success points, and making rational decisions related to it.

5. Processing and applying new knowledge in practice is the search for new knowledge, the introduction of ways to apply the discovered knowledge in practice. Because the value of knowledge that is not applied in practice is always zero [9].

In pedagogical higher education institutions, along with the features of understanding, assessing, designing and anticipating the development points of educational needs when creating an individual educational trajectory, the purpose of implementing the feature of “processing and applying new knowledge in practice” presented by the author is to ensure a more effective and deeper



academic and professional development of students by consolidating their acquired knowledge in real practice.

Analysis and results. Thus, in pedagogical higher educational institutions, the individual educational trajectory represents a planned educational path aimed at the personal and educational development of the student, including goals and stages. This trajectory is a design process that optimizes the student's learning process and ensures the achievement of individual educational goals.

When designing their individual educational trajectories, students should pay attention to the following factors (Figure 2). The individual educational trajectory is designed as a result of scientific and methodological observation. The student's ability to evaluate his own activities or independently design them leads to uncertainties in his actions.

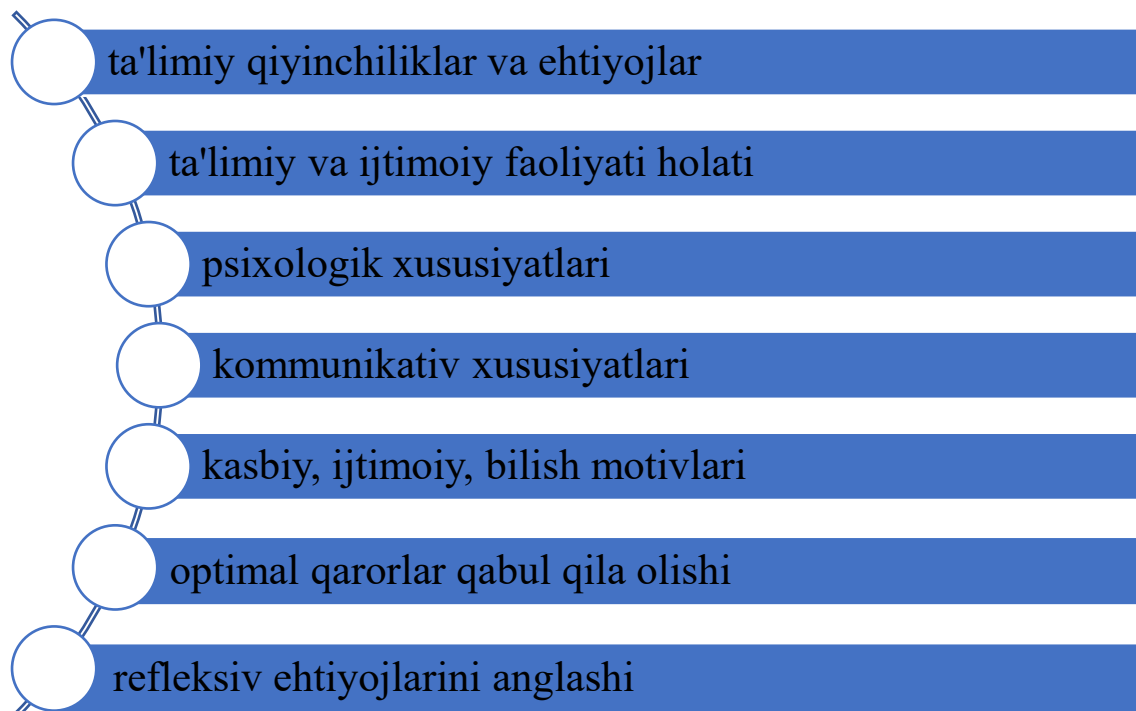


Figure 2. Design of ITT

According to the understanding of reflective needs, it is assumed that students of pedagogical higher educational institutions will work on an individual educational trajectory according to the following algorithm. This algorithm presents the stages of implementing an individual educational trajectory:



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- ☐ **Diagnosis** - based on an analysis of the student's needs, interests and difficulties, it is necessary to diagnose which aspects the student needs to develop for himself, what needs should be taken into account. The diagnostic process is carried out through a questionnaire, questionnaire or interview with a consultant. It is advisable to carry out the diagnostic process with the student's consultant.
 - ☐ **Goal clarification** - after the student's needs, interests and difficulties are diagnosed, it is necessary to clarify the goal of his individual development accordingly. It is precisely the clarity of the goal that guarantees the expected result.
 - ☐ **Content formation** - is determined by the sequence of tasks performed by the student in the process of acquiring knowledge. In this process, it is important to establish a specific activity and take actions based on a specific content.
 - ☐ **Direction setting** - as a result of the formation of the content, the student determines the direction of education based on his knowledge needs. In this case, the student can implement his individual educational trajectory in a traditional, distance or with a consultant, or in a mentor-student system, according to his wishes.
 - ☐ **Implementation** - that is, for self-implementation, the most important thing is to set a specific time and work in a specific process, and no individual development program will be implemented if knowledge is not mastered based on the defined direction within the specified period.
 - ☐ **Analysis** - all the knowledge obtained is analyzed.
 - ☐ **Reflective assessment** - leads to the correction of some mistakes and shortcomings that the student made in the process of working on himself in the individual educational trajectory.

This algorithm allows students to effectively organize their individual learning trajectory and helps them develop strategies that meet their personal needs during the learning process. This, in turn, ensures that the student achieves their learning goals, increases the efficiency of the learning process, and improves the quality of education.



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