

METHODOLOGY FOR DEVELOPING STUDENTS' INDEPENDENT LEARNING COMPETENCIES IN A DIGITAL EDUCATIONAL ENVIRONMENT

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ABSTRACT

This paper provides a scientific and methodological analysis of the problem of developing students' independent learning competencies in a digital educational environment. It examines the content and structural components of independent learning competence (cognitive, activity-based, motivational, and reflective), reveals the structural elements of the digital educational environment, and outlines the pedagogical conditions for using web platforms and mobile technologies. As a result of the study, a step-by-step methodology for developing students' independent learning competencies is proposed, comprising diagnostic, motivational, resource-utilization, project-based, monitoring, and reflective stages, forming an integral system. The developed methodology serves to improve the quality of education at higher education institutions and to equip students with lifelong learning skills.

Keywords: *digital educational environment, independent learning, competence, independent learning competence, e-learning platforms, distance learning, web platform, mobile technologies, teaching methodology, self-management.*

The digitalization of modern society calls for a fundamental renewal of the education system, and in particular, requires special attention to be paid to developing students' independent learning competencies at higher education institutions. The formation of a digital educational environment is qualitatively transforming students' learning activities: alongside traditional classroom instruction, distance, blended, and independent forms of learning are gaining increasing prominence. Research conducted in this area indicates that²⁹ activating students' independent educational activity in a digital educational environment is one of the pressing problems of modern pedagogy, and this process requires special methodological approaches.

Independent learning competence is a student's ability to independently plan, organize, carry out, and evaluate their cognitive and educational activity. This competence is regarded not only as important within the learning process itself, but also as a key factor

²⁹Potapov I.S., Platonova R.I., Nikitina A.E. Activation of students' independent educational activity in a digital educational environment // Educational Bulletin "Consciousness". – 2021. – Vol. 23. – No. 11. – P. 30–38.

determining a student's competitiveness in future professional activity. The relevance of the topic is therefore directly linked to the rapid development of digital educational technologies and the growing demands placed on the quality of education.

The purpose of the study is to develop the scientific and methodological foundations for developing students' independent learning competencies in a digital educational environment and to propose an effective methodology.

1. The Content and Essence of Independent Learning Competence

In studies devoted to the formation of independent learning competence, this concept is interpreted as the sum of a student's intrinsic need for acquiring knowledge, self-management, time-planning, and the ability to use educational resources independently. In particular,³⁰ has developed a methodology for forming base competencies in the process of independent education, using students of economics-related fields as an example, and substantiated a stage-by-stage model for the development of these competencies.

The structural components of independent learning competence can be identified as follows: the cognitive component (independent acquisition of knowledge and concepts), the activity component (skills for independently completing learning tasks), the motivational component (intrinsic interest in learning), and the reflective component (the ability to analyze and evaluate one's own activity). The harmonious development of these components proceeds more effectively within a digital educational environment, since digital platforms allow students to monitor and analyze their own activity in real time.

2. Opportunities and Structural Elements of the Digital Educational Environment

The digital educational environment is understood as an integrated system for organizing the learning process based on information and communication technologies. This includes e-learning platforms (LMS), distance learning systems, electronic libraries, webinars and online courses, as well as intelligent tutoring systems based on artificial intelligence. In a study on the methodology for developing students' information and communication competence under conditions of distance learning,³¹ notes that a student's ability to work with information technologies is one of the key factors determining the effectiveness of independent learning in a modern educational environment.

Regarding the classification of digital resources and platforms, a comprehensive analysis has been carried out by³², in which educational resources are divided into the

³⁰Khodjikulova Sh.N. Methodology for the Formation of Base Competencies in the Process of Independent Education in Students // Excellencia: International Multi-Disciplinary Journal of Education. – 2025. – Vol. 3, Issue 3. – P. 125–128.

³¹Olimov Sh., Samiyeva Sh., Ibragimov U., Mirzoeva S., Sharopov Sh. Methodology for Developing Students' Information and Communication Competence in the Process of Distance Learning // HMMOCS 2024. LNNS. – 2025. – Vol. 1481. – P. 305–318.

³²Azzamov Y.R. Digital resources and platforms in improving students' independent learning competence: analysis and classification // Actual problems of social sciences and humanities. – 2025. – Vol. 5, No. 12. – P. 549–553.

following groups: content-delivery platforms (e-textbooks, video lectures), interactive platforms (testing and assignment systems), communication platforms (forums, chats, videoconferencing tools), and monitoring-and-assessment systems. This classification serves as an important basis for selecting platforms suited to students' independent learning needs and for developing methodologies for their effective use.

3. Pedagogical Conditions for Using Web Platforms and Mobile Technologies

In organizing students' independent learning activity at higher education institutions, the pedagogical conditions for using web platforms are of particular importance. In a related study,³³ substantiates that the effectiveness of using web platforms depends on the following conditions: the platform's adaptation to students' level, the systematic structure of learning materials, the presence of feedback mechanisms, and the opportunity for students to track their own results.

At the same time, the integration of mobile technologies into the learning process allows students to access learning materials at any time and place. A study by³⁴ demonstrates that the use of mobile applications and platforms increases the degree of flexibility and individualization in organizing students' independent learning activity. This, in turn, strengthens students' sense of responsibility for the learning process and their capacity for self-control.

4. Methodology for Developing Independent Learning Competencies

Based on the analysis presented above, a step-by-step methodology is proposed for developing students' independent learning competencies within a digital educational environment:

- 1) Diagnostic stage – determining the initial level of students' independent learning skills through electronic tests and surveys;
- 2) Motivational stage – using digital tools with gamification elements (points, ratings, certificates) to foster students' intrinsic interest in independent learning;
- 3) Resource-utilization stage – recommending e-learning resources, open online courses (MOOCs), and mobile applications suited to students' learning needs;
- 4) Project-based and practical stage – engaging students in independent inquiry through individual and group projects and case-study assignments;
- 5) Monitoring and control stage – tracking students' activity in real time and analyzing results through LMS systems;

³³Isroilova L.S. Pedagogical conditions for using web platforms in organizing students' independent learning in higher education // BG Pulse Journal USA. – 2026. – Vol. 2, No. 6. – P. 2287–2292.

³⁴Isroilova L.S. Using mobile technology in organizing students' independent learning // Electronic journal of actual problems of modern science, education and training. – Urganich, 2024. – No. 11. – P. 80–85.

6) Reflective stage – enabling students to independently evaluate the results of their own activity and determine a strategy for further development.

The effectiveness of this methodology lies in the fact that it shapes the student not merely as a consumer of knowledge, but as an active subject of their own learning process. The flexible and interactive nature of the digital educational environment further makes it possible to individualize this process and to track students' learning achievements in real time.

In conclusion, the digital educational environment creates broad opportunities for developing students' independent learning competencies; however, these opportunities can be used effectively only when a scientifically grounded methodology is in place. The step-by-step methodology proposed in this study — comprising the diagnostic, motivational, resource-utilization, project-based and practical, monitoring, and reflective stages — serves to organize students' independent learning activity in a comprehensive manner. Implementing this methodology in practice makes it possible to improve the quality of education at higher education institutions, strengthen students' professional competence, and equip them with lifelong learning skills.

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