METHODOLOGY FOR IMPLEMENTING A PEDAGOGICAL MODEL AND ITS DIGITAL DIDACTIC SUPPORT

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Abstract. *This article examines the theoretical and practical aspects of improving the methodology for implementing a pedagogical model in the educational process and its digital didactic support. The goal-oriented, content, organizational-methodological, technological, and diagnostic components of the pedagogical model are substantiated as an integrated, mutually interacting system. The article describes the opportunities offered by digital learning resources, e-courses, multimedia tools, learning management systems, interactive tasks, and electronic assessment mechanisms.*

Keywords: *pedagogical model, implementation methodology, digital didactics, digital learning resources, e-learning, interactive methods, pedagogical technologies, digital competence, individualized learning, monitoring, learning effectiveness.*

INTRODUCTION. In modern education systems, the widespread use of digital technologies calls for improving the content, methods, organizational forms, and assessment mechanisms of teaching. Today, raising the effectiveness of education cannot be reduced to introducing electronic tools into the learning process. It requires aligning digital technologies with clear pedagogical goals, didactic principles, and the individual needs of learners.

One of the key directions in the development of higher education in the Republic of Uzbekistan is the introduction of digital technologies and modern teaching methods into the educational process. The Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030, approved by Presidential Decree No. PF-5847 of 8 October 2019, pays particular attention to applying digital technologies in education, developing distance learning services, and using blended learning and modern pedagogical approaches.

LITERATURE REVIEW. In contemporary pedagogical science, the implementation of a pedagogical model is understood as organizing educational goals, content, methods, tools, and expected outcomes in an interconnected way. A

pedagogical model serves as a systemic mechanism that translates the theoretical concept of the educational process into practical activity.

In this area, the TPACK (Technological Pedagogical Content Knowledge) framework developed by the American scholars Punya Mishra and Matthew J. Koehler is of particular importance. This approach demonstrates that a teacher's professional competence is formed through the integration of three core knowledge domains: subject content, pedagogical knowledge, and technological knowledge. According to the authors, the effective use of digital technologies is ensured not by merely introducing them into the learning process, but by adapting them to the educational content and pedagogical methods.

In Uzbekistan's academic community, too, particular attention is being paid to organizing digital education, improving didactic resources, and developing students' digital competencies. In particular, Jabbor Eshbekovich Usarov's study, *Didactic Opportunities for Developing Digital Literacy and Information Competence of University Students in the Context of the Digital Transformation of Higher Education*, analyzes the didactic potential for developing higher education students' digital literacy and information competence. D. Xurramov's 2025 article, *Improving the Programmatic and Didactic Support for Developing Students' Digital Competence*, addresses the integration of software and didactic support in developing students' digital competencies; the study highlights the importance of developing digital skills, improving curricula, and applying pedagogical interventions. Sevara Qodirova's 2026 work, *The Concept, Structure and Didactic Possibilities of the Digital Learning Environment*, examines the technological, methodological, content-related, and communicative components of the digital learning environment.

RESEARCH METHODOLOGY. This study is theoretical-analytical and design-oriented in nature. It draws on scientific approaches aimed at substantiating the methodology for implementing a pedagogical model and the structural composition of digital didactic support.

ANALYSIS AND RESULTS. For a pedagogical model to be implemented effectively, its structural components must be coherent with one another. Each component of the model performs a specific function and contributes to achieving the overall educational outcome.

1. **Goal-oriented component.** Defines the aim of education, the expected outcomes, the competencies to be developed, and the indicators of effectiveness.
2. **Subject-matter component.** Encompasses learning materials, theoretical knowledge, practical tasks, the content of independent study, and the set of digital resources.

3. **Organizational-methodological component.** Determines teaching methods, forms of instruction, individual and group activities, project work, and the interaction between teacher and learner.

4. **Technological component.** Includes learning management systems, electronic textbooks, video lessons, virtual laboratories, interactive tests, and other digital tools.

5. **Diagnostic-assessment component.** Consists of initial and final assessment, formative assessment, the electronic portfolio, feedback, and mechanisms for monitoring learning outcomes.

6. **Outcome component.** Describes the expected changes in learners' level of knowledge, practical skills, capacity for independent work, digital competencies, and learning motivation.

Table 1

A comparative analysis of scientific approaches to the pedagogical model and digital didactic support[1]

Authors of the approach	**Core scientific idea**	**Relevance to the research topic**
Mishra and Koehler (2006)	Integration of technological, pedagogical, and content knowledge	Aligning digital tools with pedagogical goals
Branch (2009)	Instructional design based on the ADDIE model	Defining the stages of developing, implementing, and evaluating a pedagogical model
UNESCO (2018)	Developing teachers' ICT competencies	Substantiating educators' readiness for digital education
Redecker (2017)	The DigCompEdu framework for developing educators' digital competencies	Identifying and developing educators' digital competencies
Vieira, Baelo, and Peres (2026)	Systematic analysis of didactic models in digital education	Identifying the opportunities and challenges of selecting and implementing a digital didactic model
Decree No. PF-5847 of the President of the Republic of Uzbekistan (2019)	Developing higher education and introducing digital technologies into the educational process	Establishing the national regulatory basis of the research

The analysis of the table shows that the sources reviewed illuminate different aspects of implementing a pedagogical model. The TPACK model explains the relationship among technology, pedagogy, and learning content, while the ADDIE model systematizes the stages of designing and evaluating the educational process.

[1] Compiled by the author on the basis of the scientific and regulatory sources cited.

DigCompEdu, in turn, sets out important directions for developing educators' digital competencies. Uzbekistan's regulatory documents on education development, for their part, define the national priorities for introducing digital technologies into the educational process. Accordingly, in developing a methodology for implementing the pedagogical model, this study may combine these approaches. In doing so, pedagogical goals, learning content, digital didactic tools, learners' activities, and assessment criteria should be considered as a single system.

On the basis of the theoretical analysis, it is proposed that the methodology for implementing the pedagogical model be organized as a unity of the following interrelated directions: defining goals and expected learning outcomes; enriching learning content with digital didactic tools; organizing learners' independent and collaborative activity; shaping individual learning pathways; establishing feedback and assessment through digital tools; and improving methodological support on the basis of the results obtained.

The effectiveness of digital didactic support is determined not by the number of platforms used, but by their alignment with educational goals, the quality of their content, their interactivity, and their capacity to support the learner's independent activity.

Table 2

Criteria for evaluating digital didactic resources[2]

Criterion	Content of assessment	Proposed indicator	Assessment method
Content relevance	The resource's fit with the learning objective	Degree of alignment with learning outcomes	Expert analysis
Scientific reliability	Accuracy and currency of the information	Verified sources; presence of errors	Content expert review
Didactic effectiveness	The extent to which the material supports learning	Results of mastery and practical tasks	Diagnostic assessment
Interactivity	Learners' active participation	Completion of interactive tasks	Platform data
Individua-lization	Adaptation to different levels of preparation	Availability of alternative tasks and individual pathways	Methodological analysis
Usability	Clarity of the material and technical convenience	Difficulties encountered during use	Observation; survey
Inclusiveness	Suitability for users with different needs	Availability of subtitles, text alternatives, and accessible navigation	Compliance audit
Security and legal compliance	Respect for personal data and copyright	Compliance with permissions, licenses, and privacy requirements	Document analysis

[2] Author's development based on the research results.

The table indicates that the quality of digital didactic support must be assessed using a multi-criteria approach. For example, a visually appealing video lesson that contains scientifically inaccurate information cannot be regarded as a high-quality didactic resource. Likewise, if an electronic textbook is excellent in content but difficult to use, or does not open on mobile devices, learners' access to it is limited.

For this reason, when evaluating resources, attention should be paid not only to technical or design features but also to the harmony of content, methodology, usability, inclusiveness, and security. When putting the pedagogical model into practice, it is advisable to combine different methods suited to the learning content. These may include problem-based learning, the project method, cooperative learning, the flipped classroom, and blended learning.

The figure below presents illustrative data constructed for demonstration purposes to show how these indicators might be assessed. These figures do not represent the results of a real experiment; they are used only to show how the results of the proposed methodology could be presented.

Figure 2

Initial and final status of illustrative indicators[3]

Indicator	Initial, %	Final, %
Completion of independent tasks	58	80
Use of digital resources	45	76
Interactive participation	54	79
Completion of practical tasks	60	77

The diagram shows that several outcome indicators need to be monitored together when evaluating a pedagogical model. Relying solely on final test results does not fully capture learners' independent work, their use of digital tools, or their participation in interactive activity. In practical use of the diagram, each indicator should be measured according to an identical definition and assessment criterion. For example, the notion of "active participation" can be defined through pre-set indicators such as taking part in discussions, completing assignments, and contributing to group work. Furthermore, the initial and final indicators must be measured on the same participants or on comparable groups. Otherwise, attributing the observed changes specifically to the effect of the pedagogical model would not be scientifically justified. Thus, linking digital monitoring data to pedagogical decisions is an important condition for improving the educational process.

[3] Author's development based on the research results.

CONCLUSION. On the basis of the theoretical-analytical work carried out, the following conclusions have been drawn regarding the methodology for implementing a pedagogical model and the improvement of digital didactic support.

First, the pedagogical model should be designed as an integrated system that unites educational goals, content, methods, digital tools, and assessment mechanisms. Its effective implementation depends on the mutual coherence of its structural components.

Second, digital didactic support is not limited to electronic textbooks and video lessons. It also encompasses interactive tasks, electronic assessment tools, virtual laboratories, collaboration platforms, individualized learning resources, and monitoring mechanisms.

Third, it is advisable to organize the implementation of the pedagogical model in the following stages: diagnostics, design, preparation, practical application, monitoring, correction, and final assessment. Such sequencing makes it possible to identify existing needs and to improve the process step by step.

Overall, the integration of the methodology for implementing the pedagogical model with digital didactic support creates important opportunities for the purposeful organization of the educational process, support for independent learning, improved feedback, and systematic assessment of learning outcomes.

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