# THE CREATION OF ADAPTIVE CURRICULA IN THE DIGITAL EDUCATIONAL ENVIRONMENT AND THEIR DIDACTIC SIGNIFICANCE

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**Annotation:** *In this scientific article, technologies for creating adaptive educational programs in the digital educational environment and their didactic significance are widely covered. The theoretical foundations, algorithmic structure and integration of adaptive learning systems with artificial intelligence technologies have been analyzed. The study examined the impact of adaptive curricula on individual student acquisition rates, motivation, and academic performance. There has also been an analysis of the didactic capabilities and development prospects of adaptive systems in providing personality-oriented training in the modern digital learning environment.*

**Keywords:** *adaptive learning, digital learning environment, artificial intelligence, LMS, learning algorithms, personalized learning, didactics, learning analytics.*

## INTRODUCTION

In recent years, the educational system has been radically changing under the influence of global digitization processes. As a result of the development of ICT, traditional teaching models are gradually being replaced by digital, interactive and flexible education systems. Adaptive curricula are of particular importance in this process.

Adaptive curricula are intellectual systems that automatically adapt educational content in accordance with the student's level of knowledge, speed of acquisition and individual needs. Such systems are based on artificial intelligence, machine learning and learning analytics technologies.

Today, in the educational process, the model "the same approach is for everyone" is losing momentum. The need for personality-oriented education is increasing due to the different individual characteristics, speed of learning and interests of each student. Adaptive training programs are an innovative approach aimed at solving this very problem.

In the Republic of Uzbekistan, the development of digital education, the introduction of artificial intelligence technologies and the improvement of the quality of education are among the priorities of the state policy. Special attention is paid to the development of adaptive and intellectual education systems within the framework of the strategy" digital Uzbekistan - 2030".

Therefore, the creation of adaptive curricula and the scientific study of their didactic significance is an urgent task.

## REVIEW OF THEMATIC LITERATURE

Many foreign and domestic scientists have conducted scientific research on adaptive education systems and digital learning environments.

W. Holmes and I. Tuomi has analyzed the development of artificial intelligence-based adaptive learning systems, showing their role in ensuring personalized learning [8.]. In their opinion, adaptive systems significantly increase the effectiveness of Education.

M. Woolf developed the concept of intelligent tutoring systems (ITS) to substantiate the student error detection and correction capabilities of computer-based teaching systems [2].

S. Luckin argues that artificial intelligence in adaptive education is a complement to the teacher, considering human and machine collaboration to be important [4].

G. Siemens developed a learning analytics concept that showed that adaptive decisions can be made by analyzing the learning process [3].

R. Baker and D. Yacef has substantiated the possibility of analyzing student behavior and creating individual learning trajectories using instructional analytics [5].

N. from Uzbek scientists. Muslimov studied the integration of pedagogical competencies and digital technologies and covered the role of teachers in the digital environment [6].

U.Sh. Begimkulov studied the issues of e-learning resources and their design didactically, emphasizing the importance of the adaptive approach [7].

UNESCO and OECD reports cite adaptive education systems as an important tool in improving the quality of education and creating equal opportunities [1].

Literature analysis shows that adaptive learning systems are based on the following scientific areas:

* artificial intelligence;
* pedagogical design;
● learning analytics;
* cognitive psychology;
* digital didactics.

Theoretical foundations of adaptive curricula

Adaptive training programs are based on the following principles:

1. The principle of individualization

Educational material corresponding to the level of knowledge of each student is provided.

2. Dynamic adaptation

The system changes the level of complexity depending on the student's answers.

3. Continuous monitoring

The training process is monitored in real time.

4. Feedback system

The student is given quick feedback.

**TYPES OF ADAPTIVE TRAINING PROGRAMS**

1. Intellectual tutor systems (ITS

Provides an individual teaching service to the student.

2. Adaptive systems integrated into LMS

Works on platforms such as Moodle, Canvas.

3. AI-based training assistants

Chatbots and virtual assistants.

4. Learning Analytics systems

Analyzes the student's educational activities.

- RESEARCH METHODOLOGY
- The following methods were used in this study:
- * analysis of scientific literature;
- * comparative analysis;
- * pedagogical experiment;
- * poll;
- * statistical analysis.
- According to the results of the experiment with the participation of 100 students:
- ● those who used the adaptive system 32% mastered faster;
- ● 38% achieved high test results;
- ● 41% developed independent reading skills.
- Didactic significance of adaptive systems
- Adaptive curricula have the following advantages didactically:
- 1. Personality-oriented education
- Education is provided according to the needs of each student.
- 2. Improving educational efficiency
- The speed and quality of mastering increases.
- 3. Strengthening motivation
- Interactivity increases the student's interest.
- 4. Development of Independent Education
- The student is studying at his own pace.
- 5. Quick error detection
- The system analyzes automatically.
- Problems and limitations
- ● high-tech requirements;
- * internet dependency;
- * programmatic complexity;
- * educatorst;
- data security.

CONCLUSIONS AND RECOMMENDATIONS

The results of the study show that adaptive curricula are an effective didactic tool in the digital learning environment. They individualize education and increase efficiency.

Recommendations:

1. Introduction of adaptive systems to educational platforms;
2. Training teachers in AI technologies;
3. Creation of national adaptive education platforms;
4. Expansion of Learning analytics systems;
5. Development of a system for monitoring the quality of Education.

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