

ISSUES OF IMPROVING THE QUALITY OF EDUCATION ON THE BASE OF INDIVIDUAL APPROACH

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Abstract. *In the article, the stages of improving the quality of education based on the individual approach based on the didactic constructor, the components of the didactic constructor and the issues of connection between them are highlighted.*

The basis of this sequence of stages is the structure of the cognitive activity, and the relations between the components can be considered as the principle of choosing the values of the components, which ensures the variable nature of the methodology.

Keywords: *approach, education, upbringing, collection, knowledge, need, constructor, control, assessment.*

Introduction

Extensive equipping of schools with ICT tools, practical programs and their connection to the Internet global network allowed teachers to use teaching-methodical materials and electronic educational resources included in them. The use of various educational technologies, including distance learning technologies, electronic education, and individual education issues in the implementation of educational programs are defined in the Law of the Republic of Uzbekistan on Education [1]. At the current stage of informatization of education, the teacher had the opportunity to solve the problem of individualization of education in the general education school by using distance learning technologies, electronic educational resources installed in the information-educational environment of the school. At the same time, the main tasks of improving the quality of education based on an individual approach can be defined as:

- achieving a deep level of knowledge by students, strengthening the skills acquired in educational activities based on an individual approach;
- development of students' skills of independent planning, algorithmization, standardization of educational and self-education activities;
- Consolidation of students' rules of socially valuable behavior when communicating in the Internet community.

Teaching students based on an individual approach should be carried out by the teacher with methodical support using the educational management system (Naulearning, Moodle, etc.) [2]. In order to take into account the subjective position of the student, it is necessary to ensure his participation in setting the goal of forming an individual approach, which allows to unite the teacher and the student in a team to achieve the goal. At the same time, the division of tasks between the teacher and the student implies a change of focus from the educational process to education.

Method

In the works of M.V.Lapenok, I.N.Semenova, A.V.Slepukhin [3], didactic design is proven to be an effective tool for analyzing and designing the educational process. In agreement with the views of M.V. Lapenok, we present the didactic constructor, a conditional image of the educational process, which shows and repeats the didactic features of the event (process), presented in the form of a description of the components of the didactic constructor and the relationships between them. It includes the following components:

- 1) knowledge needs of students;
- 2) achievements in improving the quality of education based on an individual approach (results of entrance diagnostics);
- 3) goals of improving the quality of education based on an individual approach;
- 4) teaching methods;
- 5) principles of content selection of electronic educational resources;
- 6) teaching tools based on an individual approach;
- 7) forms of organization of classes;
- 8) forms of control and diagnosis of student's educational results;
- 9) criteria for evaluating educational achievements expressed in the form of educational results (with determination of mastery level) in accordance with the control-measurement materials of the final state certification.

The importance of the selected components of the didactic constructor is determined (and limited) by the different cognitive needs (target aspirations) of the students and different directions, for example, the direction of increasing the level of education, the direction of polytechnics, the direction of scientific and theoretical direction, the direction of research and modeling of educational processes, and other teaching determines the formation of directions.

- 1-Students' knowledge needs are significant signs for the component:
 - 1.1. Desire to improve academic performance.
 - 1.2. Getting a specialty after graduation.
 - 1.3. The desire to enter a higher education institution.
 - 1.4. Getting higher education after graduation (continuing studies at a higher education institution).
2. Educational achievements (results of entrance diagnostics) at the beginning of improving the quality of education based on an individual approach, respectively for the component:
 - 2.1. 0-50% completed access diagnostic test tasks.
 - 2.2. 50-80% completed entrance diagnostic test tasks
 - 2.3. 80-100% completed entrance diagnostic test tasks.
3. Significant signs for the component of the goals of improving the quality of education based on an individual approach:
 - 3.1. Deepening of knowledge about the theory of cognition.
 - 3.2. Formation of skills of solving mathematical problems with the help of spreadsheets of text editor, application software.
 - 3.3. Formation of skills for solving graphic problems with the help of spreadsheets of practical software.
 - 3.4. Formation of skills to perform experimental work by automating calculation operations.

3.5. To develop the student's experimental skills by observing and video recording natural phenomena for further analysis and forecasting.

3.6. Development of student's experimental skills in conducting natural experiments and video recording to form elements of experimental activity.

3.7. Development of the student's experimental skills in conducting experiments using the digital school laboratory.

3.8. Development (formation) of skills to control and evaluate the process and result of independent activity.

3.9. Formation of self-organization skills in teaching.

3.10. Formation and development of socially valuable norms of behavior in communication in the Internet community.

4. Important signs for the teaching methods component:

4.1. Visual-explanatory method, which includes the use of static and dynamic images of the content of electronic educational resources.

4.2. A reproductive method that includes the use of a text editor, the implementation of interactive communication.

4.3. A heuristic method that involves the use of a set of tools that allow the representation of various types of perceived information (text, graphics, video, animated images, sound).

4.4. Interactive methods of stimulating and motivating educational activities, which include the use of the reaction of the educational management system in the organization of requirements, rewards and feedback with the teacher.

4.5. Interactive methods of organizing and implementing educational activities with multimedia electronic educational resources, including the use of interactive communication opportunities.

4.6. Methods of developing students' creative abilities, including the use of representation of the studied object (events, process) using modeling tools (MS Excel, Visio, MathCad, etc.), in which the student forms hypotheses, observes changes in the computer model, draws conclusions.

4.7. Methods of forming experimental skills, including the use of video recording of natural experiments (preparation, conducting, analysis) and conducting experiments using the school's digital laboratory.

4.8. Student self-monitoring methods, including the use of computer tests, taking into account the number of test attempts within time limits.

5. Principles of selecting the content of electronic educational resources, important features for the component:

5.1. The principle of conformity of the content to the personal important goals of the student.

5.2. Scientific principle.

5.3. The principle of convenience.

5.4. The principle of interdisciplinary communication.

5.5. The principle of connecting education with practice.

5.6. The principle of connecting education with life.

5.7. Polytechnic principle.

5.8. The principle of career guidance.

5.9. The principle of dynamic operative correction of content and educational methods.

5.10. The principle of flexibility and individualization.

6. Educational tools based on an individual approach are important features for the component:

6.1. Computer, user application software.

6.2. Local school network, Intranet network, embedded learning management system.

6.3. Global network, Internet.

6.4. Electronic learning resources.

6.5. Digital school laboratory.

7. Forms of organization of extracurricular activities are significant signs for the component:

7.1. Video lectures in delayed communication mode, as well as web lectures using real-time video conference communication.

7.2. Practical independent work in delayed communication mode, written answers to questions for self-control.

7.3. Practical work - solving problems with the help of practical software.

7.4. Practical work with the help of a digital laboratory.

7.5. Control work performed in the form of computer testing using the services of automatic creation of information-educational environment tasks.

7.6. A student's full-scale experiment-test, research work in the performance of a creative assignment outside the classroom.

7.7. Out-of-class counseling, including the use of information-educational environment services during homework.

7.8. Group student forums organized to solve various issues of extracurricular activities.

8. Methods of monitoring and diagnosing the student's educational achievements are significant signs for the component:

8.1. Monitoring of one's educational activities through "Electronic portfolio".

8.2. automated control.

8.3. Diagnostic control works during class.

9. Criteria for evaluating educational achievements are significant signs for the component:

9.1. Learning, - the criteria of education corresponding to the results of science (levels: basic or higher, determined by the control-measurement materials of the State Examination).

9.2. Readiness to use information and communication technologies in their educational activities, criteria corresponding to the results of the meta-topic (levels: low, medium, high, determined by the author's methodology presented in Chapter 2).

9.3. Motivation to achieve success, criteria corresponding to personal results (low, medium, high levels diagnosed according to Yu.M. Orlov methodology).

The relationship between the components of the didactic constructor (stage, practice-oriented, control and evaluation) is manifested in stages, replace each other with the possibility of sequential repetition, and all components corresponding to each stage are formally described by highlighting a set of values. The basis of this sequence of stages is the structure of cognitive activity, and the relations between the components can be considered as the principle of choosing the values of the components, which ensures the variable nature of the methodology.

Results and discussion

The set of possible values of the given components according to the selected stages of improving the quality of education based on an individual approach is presented in the example of improving the quality of education based on an individual approach, the goal of which is to increase the level of learning (Fig. 1). To determine the level of learning, an approach based on the criterion for evaluating the educational achievements of students based on the level of learning material is used.

Didactic constructor

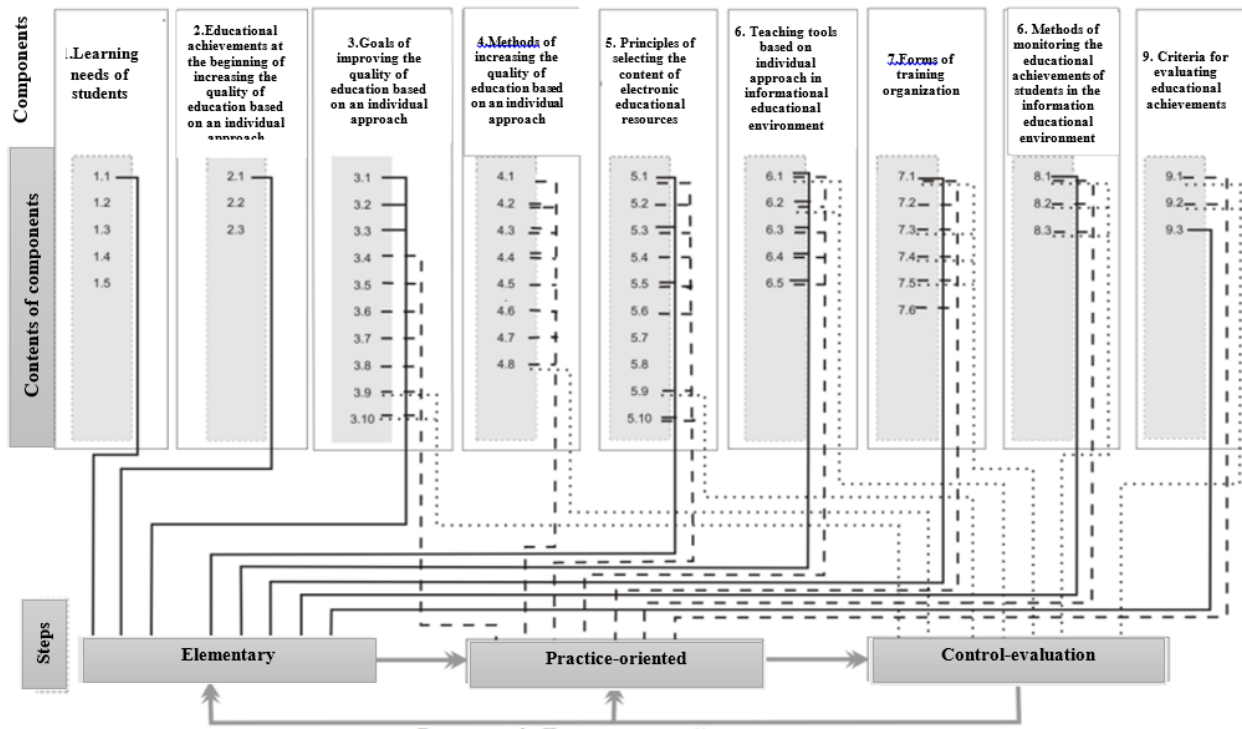


Figure 1. Didactic constructor

On the basis of the didactic constructor, the components included in the stages of improving the quality of education and their importance were determined based on an individual approach.

"1. Knowledge needs of students" - the importance of the initial stage of the component is the desire to improve educational activities.

"2. At the beginning of improving the quality of education based on an individual approach, the importance of the component "educational achievements (results of entrance diagnostics)" is the number of completed tasks, for example, 0-50% of the thematic test.

"3. The importance of the "Goals of improving the quality of education based on an individual approach" component is to deepen knowledge on the theory of knowledge, to develop the skills of solving mathematical problems using a text editor, application software spreadsheets, and to solve graphic problems with the help of software spreadsheets.

"4. The importance of the teaching methods" component is the explanatory and demonstration method, the reproductive method, the heuristic method, the methods of stimulating and motivating learning activities.

"5. "Principles of selecting the content of electronic educational resources" the importance of the component is the principle of compliance of the educational content with the personal

important goals of the student, the principle of availability, the principle of connecting education with practice.

"6. Educational tools based on an individual approach" the importance of the component is the computer, the user's application software; local school network, Intranet network, embedded learning management system; global network, Internet; e-learning resources; is a digital school laboratory.

"7. Forms of organization of extracurricular activities" the importance of the component is advice that is carried out outside the classroom, including using the services of the information-educational environment.

"8. The importance of the component "Methods of controlling and diagnosing the student's educational achievements" is to monitor one's educational activities through the "electronic portfolio".

"9. Criteria for Assessment of Educational Achievement" are activities whose importance of the component corresponds to the basic or higher level of learning.

In the practice-oriented stage "1. Learning needs of students" and "2. At the beginning of improving the quality of education based on an individual approach, the components "educational achievements (results of entrance diagnostics)" are not important, so there is no need to repeatedly determine their values.

"3. "Goals to improve the quality of education based on an individual approach" are important signs for the component: development of mathematical problem-solving skills with the help of text editor, spreadsheets of practical software; development of skills for solving graphic problems with the help of spreadsheets of practical programs; development of skills for solving experimental problems by automating calculation operations; development of the student's experimental skills in using the digital school laboratory; development (formation) of skills to control and evaluate the process and result of independent activity; formation of responsibility for fulfilling the requirements of technological sciences in teaching; Formation and development of socially valuable norms of behavior in communication in the Internet community.

"4. The importance of teaching methods" component is explanatory and illustrative method, reproductive method, heuristic method, methods of stimulating and motivating learning activities, interactive methods of organizing and implementing educational activities with multimedia electronic educational resources; methods of developing students' creative abilities and personal qualities, methods of forming experimental skills, methods of self-control of students.

"5. Principles of selecting the content of electronic educational resources" the importance of the component is the principle of compliance of the educational content with the personal important goals of the student, the principle of scientificity, the principle of convenience, the principle of interdisciplinarity, the principle of connection of education with practice; the principle that education is related to life; the principle of dynamic operative adjustment of educational content and methods; the principle of flexibility and individualization.

"6. Educational tools based on an individual approach" the importance of the component is the computer, the user's application software; local school network, Intranet network, embedded learning management system; global network, Internet; e-learning resources; is a digital school laboratory.

"7. Forms of organization of classes" the importance of the component is extracurricular, including consultations using information-educational environment services, video lecture in

delayed communication mode, as well as web lecture using real-time video conference; practical independent work in delayed communication mode, written answers to questions for self-control; control works carried out in the form of computer tests using the services of automatic formation of information-educational environment tasks; scientific-research works carried out in the performance of the student's extracurricular creative individual work; groups of student forums organized to solve various issues of extracurricular educational work.

"8. "Methods of controlling and diagnosing the student's educational achievements" the importance of the component is control of one's educational activities through "electronic portfolio", automated management; consists of diagnostic tests during class.

"9. Criteria for Assessment of Educational Achievement" are activities whose importance of the component corresponds to the basic or higher level of learning.

At the control-evaluation stage "1. Learning needs of students" and "2. There is no need to repeatedly determine the values of the components "educational achievements (results of input diagnostics)" at the beginning of teaching physics based on an individual approach.

"3. The importance of the component "Goals of improving the quality of education based on an individual approach" is to develop (form) the ability to control and evaluate independent activity processes and results, to form responsibility for fulfilling the requirements of technological sciences in education.

"4. The importance of the "Teaching methods" component is the student's self-control methods.

"5. The importance of the component "Principles of selecting the content of electronic educational resources" is the principle of dynamic operative correction of educational content and methods.

"6. Educational tools based on an individual approach" the importance of the component is the computer, the user's application software; local school network, Intranet network, is an embedded learning management system.

"7. Forms of organization of extracurricular activities" the importance of the component is extracurricular, including consultation using the services of the information-educational environment; practical independent work in delayed communication mode, written answers to questions for self-control; control works carried out in the form of computer tests using the services of automatic formation of information-educational environment tasks; are the scientific research works carried out by the student during the performance of creative individual work outside the classroom.

"8. "Methods of controlling and diagnosing the student's educational achievements" the importance of the component is control of one's educational activities through "electronic portfolio", automated management; are diagnostic control works in class.

"9. Criteria for Assessment of Educational Achievement" are activities whose importance of the component corresponds to the basic or advanced level of study of physics.

Summary

Thus, the teaching process based on an individual approach is manifested in changing educational methods, forms of educational organization, methods of interaction between educational subjects, educational tools depending on the student's individual knowledge needs, it can be implemented based on an individual approach. The didactic designer provides the technological means of improving the quality of school education based on an individual approach,

it gives the teacher the opportunity to choose the necessary components of the designer based on an individual approach

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