



Diagnosing the results of education in the modern didactic paradigm (on the example of general secondary education organizations)

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Annotation: The article presents methodological materials for diagnosing educational results in the process of preparing undergraduates in the field of mathematical education on the example of studying the course "Innovative processes in education". The possibilities of modern diagnostic materials for improving the quality of training of undergraduates in the field of mathematical education and the level of their cognitive activity in the process of studying the course "Innovative processes in education" are presented.

Keywords: diagnostic materials, innovative content and learning technologies, psychodidactic and competence-based approaches.

At present, the innovative mode of education involves a new content of the criteria for the quality of the educational process, the use of new forms and methods for assessing the level of educational and psychological development of each student.

Methodology. In the traditional system of education, built on a subject-centered approach, the criteria for the effectiveness of training are associated mainly with the level of formation of knowledge, skills and abilities. Within the framework of innovative learning technologies developed on the basis of the requirements of a psychodidactic approach, the emphasis is fundamentally changing. The criteria for evaluating the effectiveness of the educational process are indicators of the formation of basic intellectual qualities of a person, such as competence, initiative, creativity, independence and the uniqueness of the mindset (M.A. Kholodnaya). Therefore, in order to assess the effectiveness of training, it is necessary to have such diagnostic tools that would trace the changes that occur under the influence of the educational process in the subject of training itself, in his mental experience.

Results. The current stage of development of education is characterized by innovative processes associated with the transition to new state standards of general secondary and vocational education. The essence of education is the formation of the ability to learn, which can be achieved through the



formation of universal learning activities and competencies of students. Two approaches to the implementation of new educational standards can be distinguished: subject-centric and psychodidactic, including activity, personality-oriented, competence-based approaches (L. S. Vygotsky, I. S. Yakimanskaya, A. V. Khutorskoy, V. I. Slobodchikov, M. A. Kholodnaya and others). The future lies in the combination of these approaches. From the point of view of the psychodidactic approach, the content and technologies of teaching a new generation, built on a fundamentally different basis, are needed. The content, structure and form of educational materials should be developed based on the psychological and pedagogical substantiation of the multifunctionality of modern educational and diagnostic materials, that is, each element of the learning content (methods of presenting educational information, sequence and layout of educational material, style of presentation, forms of control, etc.) e.) must have a certain psychological addressee and provide a certain developmental psychological effect.

Innovative educational and diagnostic materials are developed with a focus on creating conditions for the formation and development of universal educational activities and competencies. The student is not subject to strict evaluation frameworks, rules and regulations. On the contrary, in the process of completing tasks, the expression of one's point of view, introspection and self-control, responsibility, initiative, readiness for creativity are encouraged.

Diagnostic tasks encourage students to participate in decision-making, which means they improve the quality of decisions, ensure the distribution of responsibility, form motivation to achieve a higher level of competence, acquire the necessary knowledge and understand the educational material.

The modern didactic paradigm refers to modern approaches to teaching and learning that take into account the changing needs of students and advances in educational research and technology. Although specific practices may vary, there are several key features associated with the modern didactic paradigm:

Student-centered education: The modern didactic paradigm emphasizes the student as an active participant in the educational process. It develops students' engagement, critical thinking and problem solving skills. Teachers act as facilitators, guiding students' quest for and discovery of knowledge, rather than simply imparting information.

Personalization and Differentiation: Recognizing that students have different learning styles, abilities, and interests, the modern didactic paradigm encourages personalized and differentiated



learning. This includes tailoring teaching methods, content and assessment to meet the needs of individual learners, helping them reach their full potential.

Cooperative learning: In the modern didactic paradigm, cooperation is emphasized because it promotes communication, teamwork, and interpersonal relationships. Group projects, discussions, and cooperative learning activities are common strategies used to promote cooperative learning.

Inquiry-based and experiential learning: The modern didactic paradigm emphasizes hands-on, experiential learning rather than relying solely on lectures and textbooks. It encourages students to ask questions, explore topics of interest, actively experiment and solve problems. This approach promotes deeper understanding of concepts and enhances critical thinking skills.

Technology Integration: Technology plays an important role in the modern didactic paradigm. It is seen as a tool to improve teaching and learning, provide access to a wide range of resources, facilitate communication and collaboration, and provide interactive and immersive experiences. Technology integration ranges from using educational programs and online resources to multimedia and virtual reality tools.

Continuous Assessment and Feedback: Assessment is seen as an ongoing process in the modern didactic paradigm. It goes beyond traditional exams and grades and includes a variety of formative assessments such as projects, presentations and self-reflection. Timely and constructive feedback is provided to support student learning and growth.

It is important to note that educational paradigms continue to evolve over time.

In the modern didactic paradigm, the diagnosis of learning outcomes usually includes a multifaceted approach that goes beyond traditional testing and evaluation. Some common methods used to diagnose learning outcomes in this paradigm are:

Formative assessment: Formative assessment is an integral part of the modern didactic paradigm. It involves continuous, informal assessment throughout the learning process to monitor student progress and understanding. Teachers use a variety of methods, such as question-and-answer, observation, class discussion, and quizzes, to gather information about student learning and provide rapid feedback.

Authentic assessment: Authentic assessment focuses on the real-world application of knowledge and skills. It assesses students' ability to apply what they have learned in a meaningful context. For example, projects, portfolios, presentations, case studies, simulations and performance-based assessments. These assessments provide a more holistic view of students' capabilities and allow them to demonstrate their understanding and skills in practical situations.



Self-Assessment and Reflection: The modern didactic paradigm encourages students to actively participate in evaluating their own learning. Self-assessment activities such as self-assessment journals, self-evaluations, and goal setting develop metacognition and help students gain a deeper understanding of their strengths, weaknesses, and areas for improvement.

Peer Assessment: Peer assessment involves giving students feedback and evaluating the work of their classmates. It helps develop collaboration, critical thinking and evaluation skills. Peer assessment can take many forms, such as peer feedback on presentations or group projects, peer review of written assignments, or collaborative problem-solving activities.

Rubrics and Criterion-Based Assessment: Rubrics provide clear criteria and expectations for evaluating student work. They define specific standards and performance levels for various aspects of a task or project. Rubrics help ensure consistency and fairness in assessment of learning outcomes and provide students with transparent guidance for self-evaluation and improvement.

Digital tools and learning analytics: Technology plays an important role in the diagnosis of learning outcomes in the modern didactic paradigm. Digital tools and learning management systems often offer data analytics capabilities where student activity, engagement, and progress can be tracked and analyzed. These analytics provide teachers with valuable insights that allow them to identify areas for improvement, personalize instruction, and provide targeted support to individual students.

By using a combination of these assessment methods, the modern didactic paradigm aims to provide a comprehensive understanding of student learning outcomes, while encouraging student and teacher reflection, self-regulation, and continuous improvement. aimed at encouraging.

The developed assessment and methodological materials serve the purposes of current control and self-control of students. Assessment is, as a rule, descriptive in nature, and performance is of a protocol nature, that is, students perform tasks in writing, filling out the proposed forms. In each case, methods for evaluating results are known (evaluation should not cause difficulties for the teacher and student).

Here are some of the many types of assessment of educational achievements that are applicable to monitoring in the learning process in mathematical areas in the context of psychodidactic and competence-based approaches. It should be noted that the developed training materials-examples are intended for classes with undergraduates of pedagogical universities in the course "Innovative processes in education", as well as for students, graduate students, teachers, schoolchildren and everyone interested in active forms of educational control.



For current monitoring, you can use tasks to complete the text with missing words when you need to fill in a grammatical, graphic or other structure with missing elements. This is one of the methods of current diagnostics of the level of understanding of educational material.

The proposed text-tasks provide for the generalization of what has been learned, control and correction, during which undergraduates consolidate scientific concepts and join in the work on reference and popular science texts.

Here is an example of a task designed to control understanding. It should be noted that a fragment of the abstract of the introductory lesson is used, aimed at immersing undergraduates in the semantic space of the course "Innovative Processes in Education", with missing words to be inserted by students.

Innovative processes in education in diagrams and tables

Tell me and I will forget

Show me and I will remember

Involve me and I_.

The most important task of the modern education system is "__", which means the implementation of the competency-based paradigm of education.

New quality of education = ZUN + UUD

- knowledge _

—skills _

- skills _

New educational outcomes:

- _(ZUN, concepts, laws, properties and methods of action)
- _(mental neoplasms, individual gains)
- _(interdisciplinary concepts, UUD)

4 blocks of UUD: personal, _, cognitive and communicative.

Competence is the ability and willingness to apply knowledge and skills in solving contextual problems in various subject areas.

_ - possession of certain competencies.

SES, basic general education program, development program

_ (independently develops each educational new institution).

New approaches in education: activity-based, problem-based, research + competency-based,



system-activity (SES), personality-oriented (I. S. Yakimanskaya),

developmental education (V.V. Davydov, D. B. Elkonin),_

(M.A. Kholodnaya, E.G. Gelfman), dialogization of education, meta-education,

productive learning system (M.I. Bashmakov),

An innovation that changes the quality of the system is called.

Components of the education system:

1) the content of training (subject content, basic concepts of the course and features of their formation);

2) _ (organization of activities and management);

3) educational environment (external relations).

1. Innovative mathematical content

Modern lines of educational and methodological complexes (TMC) (A. G. Mordkovich, G. V. Dorofeev, G. K. Muravin, M. I. Bashmakov, A. G. Merzlyak), educational books (F. F. Nagibin, B. A. Kordemsky, A. V. Spivak, Ya. I. Perelman, S. A. Genkin, N. Ya. Vilenkin, L. F. Pichurin, M. Gardner, "Quantum"), educational literature, new sections (elements combinatorics and probability theory), practice-oriented texts, tasks (competence-based, contextual, developing, focus tasks, counterexamples), psychodidactic and competence-based approaches to the construction of educational texts.

2. Innovative educational technologies

Critical Thinking Development Technology, Flipped Classroom,

3. Innovative educational space

Educational events at the school, municipal, regional, all-Russian, international levels (extracurricular activities, teacher professional growth map, road maps, math week, math school, conferences, projects, olympiads, competitions, tournaments, seminars, master classes, open lectures), modern digital resources, innovative information environment.

With the help of a system of continuous professional training, including innovative content, forms of education, assessment materials and focused on the formation of the competence level of knowledge and skills of students, conditions are created for the development of the undergraduate's personality in the direction corresponding to his internal desire for self-development, self-actualization and self-realization in the field of modern mathematical education.

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