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IMPROVING THE QUALITY OF FUTURE PRIMARY IT TEACHER TRAINING MODEL

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Abstract: The article examines the experience of using the adaptive model of teaching informatics and digital technologies. The impact of the adaptive model on improving the quality of education and forming the professional component of future informatics teachers was analyzed.

Keywords: knowledge, skills and competence, competence, learning model, adaptive model, IT competence, professional competence



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Annotation

At the current stage of the development of the education system, it is necessary to look for ways to improve relations with the labor market, to bring the quality of training of specialists to the level of developed countries. Knowledge of information and digital technologies is an integral part of almost any type of activity. Today, the requirements for a modern specialist are different from the requirements for a graduate of higher education institutions.

Currently, a modern teacher should have the following:

- to have the opportunity to use various information sources without obstacles through the professional use of information and communication technologies (ICT), digital technologies and technical tools;
 - Ability to process large amounts of information in a timely, fast and high-quality manner with optimal selection of ICT and digital technologies;
 - having an established communication environment;
 - to be able to create something new based on existing knowledge and apply it to a specific activity;
 - to have the ability of professional mobility, social activity;
 - having qualifications in related fields;
 - ability to make quick and effective decisions;
- striving for continuous self-improvement, self-awareness, self-development [1].

One of the forms of manifestation of a specialist's competitiveness is his competence. The concept of "competence" includes a complex, capacious content that includes professional, socio-pedagogical, socio-psychological, legal and other features [3].

The main goal of implementing a qualified approach in education is to be competitive in the labor market, well-versed in their profession and focused on relevant fields of activity, qualified, able to work effectively at the level of world standards in their specialty, ready for continuous professional growth, helps prepare a socially and professionally active specialist.

It was hypothesized that the process of preparing a future informatics teacher for the development of professional IT competence based on a student-oriented approach can be effective in the following cases:

a) the theoretical and methodological foundations of this approach are determined;

b) provided as pedagogical conditions for teaching

v) a person-oriented approach that provides a system of certain pedagogical conditions for the training of a future informatics teacher, such as content-purpose, procedural, methodological-technological and practical and production of the content of the process modeled on the basis of IT competence a flexible model of preparing the informatics student for development will be developed.

The "Informatics and digital technologies" course is included in the "Compulsory subjects" section of the State Education Standard and is considered mandatory. The main pedagogical tasks of teaching informatics are to form a systematic and informational picture of the world and to develop students' theoretical thinking and scientific outlook.

The purpose of the course is to expand the imagination of students about the use of theoretical and practical bases of informatics and digital technologies in solving various problems encountered in their professional activities, and to form skills and qualifications.

Variants of the working programs of the subject and curricula of educational specialties at the Higher Education Institution were studied. Based on many years of experience in teaching informatics in various specialties, it was emphasized the need for a flexible educational model with elements of professional information competence in the informatics course for individual and personal development of students. Since the science software course is practice-oriented, the majority of classroom and extracurricular time in the course is occupied by laboratory activities, during which students acquire the necessary skills in working with programs and software.

Practical and laboratory training provides students with familiarization with personal computer software, allows them to work individually and flexibly with educational materials. Taking this into account, we have developed computer practice, which includes different forms of conducting lessons, from teacher-led guidance to students' independent acquisition of knowledge (working according to a planned scheme).

The peculiarity of the form of student-oriented education is aimed at maximally revealing the strengths and weaknesses of students' learning and cognitive activity, as well as stimulating and activating it. In such lessons, the teacher's monologue is replaced by a dialogue with students. This approach makes it possible to generalize and systematize previously studied material, establish a connection between knowledge and life facts, and helps to form information (professional) competence of future specialists.

Analyzing various methods of traditional pedagogy and taking into account their undoubted achievements, it is necessary to admit that independence of thought and action were qualities that were not effectively formed in traditional pedagogy. These qualities, undoubtedly, lie in the intersection of personal characteristics of a person and professional qualities of a specialist. Time demands the need to look for ways to increase the level of preparation of specialists for practical professional activity. Our approach to solving this problem is based, on the one hand, on the modeling of professional activity in the educational process, and on the other hand, on the individualization of education.

Based on these positions, a flexible model of teaching informatics and digital technologies was developed and applied, which has a positive effect on the process of preparing a future teacher for the development of professional IT competence based on a student-oriented approach.

Based on the teaching methodology, the adapted model of teaching informatics and digital technologies, formed in order to increase the efficiency of the educational process, includes multi-level educational elements, which, in turn, are differentiated by taking into account the main personal characteristics (i.e. student-oriented). If the individual differences of students are taken into account in the process of teaching in didactics, education is considered differentiated. [10].

The practical adaptive model of computer education includes the following work steps:

- Determining the diagnostic goals and objectives of the training.
- Development of standards for full mastery of knowledge.
- Development of standards and tests to check the level of mastery of educational material.

- Differentiation and individualization of the level of knowledge of students according to the indicators available at the time of starting work.
- Change of training time. A significant increase in the proportion of time for independent work.
- Development of new educational materials based on the module principle.
- Development of tasks for self-control for all studied modules.
- Development of tests for conducting pedagogical control of preparation for each module and the entire course.
- Organization of students' independent work, in this process, the teacher cooperates with students to solve problematic situations, to eliminate various difficulties that arise in the educational process for individual students. Correction of knowledge according to the results of control and self-control.
- A test to determine the level of students' mastery.

The main difference of the educational process using the adaptive model is that the elements of the credit module system, the principle of variability and the combination of asynchronous education in the educational process are combined into a thematic block - a module. In addition, educational results are evaluated using credits. During the study of the modules, the student accumulates a certain number of credits, and then in total they form his individual credit. The modular credit system increases the student's motivation to study facilitates the final assessment. Develop the student's educational achievements by creating adaptive conditions for the development of the student's initial potential it is also important to carry out a step-by-step transfer to the next stage: from the bottom to the middle, from the middle to the top; from above

up.

The general algorithm for the development of the training module includes the following:

- the purpose of the studied module.
- Module name (short, clear, usable).
- A summary of the module content written in a heuristic method. Vocabulary example: "In this module you will learn about ... "; "You will find the answers to these questions on ... pages"; "Self-monitoring tasks will help you check the level and quality of your knowledge ..."; " You can find summary content in addition to the "Main Summary" section, etc.
- Module plan. List of elements (brief explanations).
- Presentation of educational material in small parts.
- The material is presented in simple, understandable language so that students do not need teacher's help in understanding the text. All concepts are clearly defined, incorporated into the system.
- Practical independent tasks for each part of the module. Assignments in other forms to test knowledge and skills (for example, assignments in the form of a test).
- Developmental, creative and quick tasks. □ Testing control over the entire material of the module. Criteria for complete mastery of the module and transfer to another module.

Based on this principle (taking into account the above work steps), we have developed 60110600 three-part practice and laboratory work, which includes seven modules, for undergraduate students of mathematics and computer science.

Tasks included in practice and laboratory work are inextricably linked with the main educational program of students and their specialties. Taking into account the direction of education made it possible to move from general didactic instructions on the individualization of education to concrete recommendations, taking into account the activation of individualized educational motivation and special (professional) abilities. Students at one or another level of education receive their development trajectory within the framework of the adaptive model of teaching informatics and information technologies.

Based on the specific features of the development of cognitive, motivational and subject-practical areas of individuality, we believe that the basis of individualization of professional training of students should be the principle of variation in the choice of content and forms of activity. A varied

approach to teaching, on the one hand, means diversity, different levels, differentiation of tasks, the possibility of advanced learning, continuity of educational forms; on the other hand, the right of a person to receive education in accordance with his characteristics, abilities, interests, life plans [6]. This choice, on the one hand, is based on the individual capabilities, interests and needs of the student, and on the characteristics of the team on the other hand, it includes the implementation of the curriculum and the acquisition of the necessary knowledge, skills and abilities by students.

To implement the principle of variation in education, we considered various methods, including: individual additional tasks, independent work of different nature, tasks of different levels of complexity, curriculum, laboratory and practical training in an "independent" way. individual schedules without limiting the time of students' work, students' educational and research work within the framework of the educational process.

Observations have shown that when students use a flexible learning model, not only the quality of education improves, but also strong skills and competences in the application of computer knowledge, regardless of the topic studied, as well as daily the desire to use a personal computer for work and study increases. Such skills and abilities facilitate and speed up work and learning, allow to quickly evaluate results, adjust the work and study process, and make decisions on complex issues.

Quantitative indicators of the quality of knowledge obtained during the experiment between students of the experimental and control groups also confirm this.

As a result of our observations, if educational and cognitive activities are organized in such a way, on the one hand, the targeted formation of IT competence is ensured, and on the other hand, the methods and tools are used. The use of the adaptive model of teaching informatics and digital technologies developed by us, which corresponds to the tasks of certain stages of the educational process, increases the quality of students' knowledge acquisition.

Thus, the formed adaptive model of teaching informatics and digital technologies, in our opinion, is effective in individualizing the educational process, correcting the gaps in the content of individual knowledge of students, and the development of strong and insufficiently prepared students. creates a practical opportunity to improve the quality of knowledge. It allows to form the professional competence of future teachers in IT. All this increases the quality of the educational process in general, and in particular, the quality of the knowledge of future informatics teachers.

Summarizing what has been said, we can briefly describe the main directions of improving the structure of educational content in the context of the adaptive model of teaching informatics and digital technologies:

- to strengthen the attention of the content to the comprehensive implementation of the main functions of the educational process - education, training, development and cooperation between the teacher and the student;
- to maximize the content of each lesson, while maintaining its accessibility, increasing its informational capabilities;
- presenting the material in larger blocks, strengthening the role of generalization in the process of studying the material, conducting generalization exercises;
- increasing the importance of both theory and practice in the content of education;
- expanding the use of the deductive approach where it is particularly effective;
- strengthening of interdisciplinary relations;
- improving the selection of tasks to solve a wider range of educational and development tasks by developing a clearly defined, necessary minimum;
- application of algorithmic instructions in the educational process;
- use of digital technologies;
- formation of general educational skills and qualifications;
- focus on mastering the basic knowledge, skills and competencies specified in the updated curriculum;
- quick application of acquired knowledge;
- formation of professional (informational) competence.

A flexible model of teaching informatics and digital technologies, based on a student-oriented approach, is not only a means of practical strengthening and development of students' theoretical preparation, but also a means of preparing them for the life of the information society, as well as for their future professional activities, and as a result, they achieve the highest quality of these activities.

Conclusion

In conclusion, it can be said that the quality of education of a particular student is the main direction of improving the quality of education of the whole society and, as a result, of its high level of professional and qualified development.

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