

THE METHODS OF DEVELOPING THE COGNITIVE ACTIVITY OF STUDENTS BASED ON COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

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ABSTRACT

In the conditions of the development of computer science and information technology, great opportunities have emerged for the rational and efficient use of new forms and methods of training and education, for the application of methods for developing the cognitive activity of students. In this article we are talking about the methods of development of students' cognitive activity in the lessons of computer science and information technology.

Keywords: Techniques, forms of training and education, explanatory and illustrative (information-receptive), reproduction, problem statement, partially search (heuristic), research, method.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

The ongoing social-educational and educational changes in the world need to pay attention seriously to the problems of creating didactic and technological conditions for the development of intellectual and cognitive activity of future professionals. This is evidenced by the Sorbonne Declaration which is received by the European Union and UNESCO, the regional educational programs "IEARN" and "KIDLINK" of the University of Illinois (USA). Nowadays, one of the most relevant pedagogical problems is to make significant changes to the vocational training of students, to intensify their training through information and communication technologies, to increase their cognitive activity. Achieving this goal includes interactive learning technologies such as "Interactive professionalism", "TEST VIEW", "TEST EDITOR", "TEST SERVER" within the framework of TEST MASTER programs, aimed at developing students' cognitive skills, learning through modern information and communication technologies, development of evaluation system.

The development of the methodology for the development of students' knowledge based on information technologies in accordance with the priorities set forth in the Strategy for Further Development of the Republic of Uzbekistan "Improving the system of continuous education, enhancing opportunities for quality education services, and training highly qualified personnel in line with modern labor market needs".

In the condition of higher education reform, the need for vocational training and the development of methods, forms and tools of education at the level of modern requirements have become necessary. Well-known pedagogical scientists of the republic on various aspects of perfection of teaching methods, problems of introduction of information and communication technologies in education, AA Abdukadirov, AH Abdullaev, M. Aripov, B. Begalov, U. Begimkulov, F. Zakirova, Olimov, NI Taylakov, LN Shibarshova, SS Gulamov, U. Yuldashev.

In the present context, the following tasks are essential for the development of students' cognitive activity based on computer science and information-communication technologies:

- studying, analyzing the status and problems of activation of cognitive activity of students in the educational process by informatics and information and communication technologies;
- creating of modular knowledge programs in educational process by using information and modern information and communication technologies, assessment of students' cognitive activity based on the system;
- development of multilevel process of activation of knowledge, skills and abilities on the basis of informatics and information-communication technologies;
- implementation of innovative forms of organization of professional practices aimed at enhancing students' cognitive activity through the use of information and communication technologies in the educational process;
- creating a model for the development of students' cognitive activity based on information technology and information and communication technologies and defining pedagogical conditions for its implementation;
- development of methodological support of the model of development of students' cognitive activity on the basis of information and communication technologies based on "Case-Problem-Method", "Case-Incident-Method";

Pedagogical research illustrates that cognitive activity enables students to form professional and specialized knowledge effectively. This means that the development of knowledge of the requirements by information and communication technologies is one of the important issues of modern education. A. V. Khutorsky cites cognitive activity as the main competence directed at acquiring knowledge, mastering methods of cognitive activity, developing certain skills, creative thinking and independence in the learning process. In our opinion, competence is not only the skills or ability to perform certain technological activities in the educational process, but also a combination of professional knowledge and skills, social ethics, teamwork, initiative. Presently, there is a need to develop new forms and methods of activating students' cognitive activity when studying the subject "Informatics and Information Technology". There are three ways to introduce pedagogical creativity in pedagogical practice: discovery, invention, improvement. At this stage, we are choosing the third path, that is, we will select the most familiar forms, methods and means of teaching and training, to choose the specific subject, teaching material, audience and conditions, its contents are enriched by creating non-standard and training activities for students' cognitive development its contents are enriched.

When organizing and conducting such training, it is advisable to rely on the following approaches:

- Creating conditions for full development of students' personal functions;
- Incorporating important tasks for students into the learning process;
- Selecting assignments (including selection of creative tasks) based on the ability of students to know;
- Reduce requirements to different social and professional situations ((role-playing activities - debating press conferences, gaming technologies such as Viruses);
- Creating conditions for students to self-identify, activate, and develop.

The results of our research have shown that the use of explanatory and demonstrative (information-receptive), modular-rating, problematic, part-time (heuristic), research methods in teaching computer science and information technology will produce positive results.

Firstly, students are interested in getting a high score. As a result, their positive attitude towards science will increase significantly and their independent activities will be activated;

Secondly, the pedagogical cooperation between teacher and student will be strengthened, which will facilitate the monitoring of teacher and student knowledge;

Thirdly, the level of independence and creative development of students will increase, which will lead to a positive attitude towards the social-economic and living conditions, the formation of a sense of self-confidence.

In our work, we relied on classification of teaching methods by the nature of cognitive activity. According to the demonstration-information method, students are provided with knowledge. The teacher communicates this knowledge in a variety of ways for students to understand and perceiving. The report is one of the most cost-effective methods of understanding, knowing, perceiving. This method can be used to explain the requirements of topics such as "Opportunities for the use of computer science and information technology in the learning process", "Theoretical Foundations of Computer Design" and "Modeling".

When reproductive methods are used, the teacher not only presents knowledge to the students but also explains their content. Students consciously acquire, understand and retain knowledge in computer science and information technology. At the same time, the ability of students to restore their acquired reproductive knowledge is a criterion for educational effectiveness. This method is compact, giving you the ability to master a lot of knowledge and skills in a very short time and with little effort. For example, certain skills and abilities will be formed in the study of "Computer Computing Systems", "Technical Design in Computer", "Electronic Training and Methodological Complex".

In problem-solving exercises, the problem-solving method is used. The following methods can be used to study educational materials: The teacher will write the assignments, suggesting them to do similar tasks without presenting or explaining them to the students themselves. Mistakes: 1) Software (algorithms), their pragmatics are written on the whiteboard, requirements are found in the program errors. 2) programs (algorithms) are pre-written on the blackboard - students copy and paste them into the pages of the notebook. There are deliberate mistakes made in the text, and they have been "hidden". The deliberate mistakes are recorded or saved in a notebook. The blackboard programs (algorithms) are deleted. (algorithms reproduce pages are mixed together and then distributed to students.) Students find and correct errors in rewritten programs (algorithms) and then check their validity in various ways.

While using the part-time method, the knowledge is not readily available, it is necessary to master it independently, the teacher does not provide the students with the necessary knowledge, but allows them to search for new knowledge by various means. Students will be able to think independently under the guidance of a teacher, solve emerging cognitive issues, create and solve problematic situations, analyze, compare, summarize, draw conclusions, resulting in solid knowledge.

In the research method, the teacher together with the students form a problem, with a specific amount of study time allocated. Students independently take over the applications in problem solving (research work), confirm several variants of the results obtained. At the same time, the educational process is characterized by its high intensity, and differs by the interest, depth, consistency and accuracy of the received knowledge. It involves the creative acquisition of knowledge. Such sessions can be organized on a broader topic, such as a press conference for students on "The social and practical importance of information and communication technologies today."

The pedagogical practice demonstrates that the following principles should be taken into account when introducing methods for developing students' cognitive activity in the study of "Computer Science and Information Technology": improvement of mechanisms of management of the education system; improvement of the methodology and strategy of the selection of educational content, methods, organizational forms of training and upbringing in the modern conditions of the informatization of society; creation of methodical system, directed to development of intellectual potential and activeness of students, formation of skills of independent acquisition of knowledge, carrying out information-educational and experimental-research activity, development of computer testing and diagnostics, providing systematic control and evaluation of knowledge of students; ensuring the rhythm of students' educational work; reduction of student and faculty load during the semester; ensuring individual learning rates; take into account the opportunities and needs of students; increase the ability to work independently with various sources of information; development of independence as a personal quality; constant provision of external and internal control over student achievement.

Based on the results of pedagogical research, problem-solving and conclusions, the following recommendations can be made:

- Organizational components of the development of cognitive activity of future professionals (motivational, cognitive, motivational, cognitive, using the methods of explanatory-demonstration (information-receptive), module-rating, problem-solving, heuristic, aimed at activation of students' cognitive activity in the educational process; improvement of active, reflexive, creative) content;
- Organizational-pedagogical structure of development of students' cognitive activity based on technologies «Case-Problem-Method», «Case-Incident-Method»;
- Implementation of criteria (cognitive, functional, motivational, trajectory) and methods (theoretical, technical, creative, module-rating system, assimilation, quantitative) based on the principles of regularity, consistency, and gradual development of cognitive activity in students.

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