METHODS OF TEACHING COMPUTER SCIENCE

Narzullayev Shokhzod
Teacher of informatics of the Professional School of Forish, Jizzakh region.

Abstract

The system-activity approach as a methodology for constructing state standards of general education closely links educational results with certain types of schoolchildren's learning activities. It is clear that the use of new types of educational activities will force to look for new innovative forms of their implementation. The subject of the methodology of teaching informatics and a place in the vocational training system for an informatics teacher Computer science as a science and a subject in school. The connection of teaching methods of computer science with pedagogy, psychology and computer science. Methodical system of teaching computer science in a secondary school.

Keywords: teaching, methodical, innovation,school, computer science,learning, subjects.

The subject of informatics teaching methods has a special place in the system of vocational training for an informatics teacher as a whole. Computer science as a science and a subject in school is bearing fruit at this time. The connection of the methods of teaching computer science with pedagogy, psychology and computer science is this part of the methodological system of teaching computer science in a secondary school. General characteristics of its main components (goals, content of training, methods, forms and means of training). The introduction to the school of the general subject "Fundamentals of Informatics and Computer Engineering" began the formation of a new field of pedagogical science - the methodology of teaching computer science, the object of which is computer science training. A computer science teaching methodology course appeared in the country's universities in 1985. In 1986, the publication of the methodological journal "Computer Science and Education" began. According to the classification of scientific specialties, this section of pedagogy, which studies the laws of teaching computer science at the present stage of its development in accordance with the goals set by society, has received a new name - "Theory and Methods of Teaching and Education (computer science; by educational level)". In accordance with the State educational standard of higher vocational education, specialty 030100 "Informatics" (2000), the MPI course became known as "Theory and Methodology of Teaching Informatics". However, the established name "Methodology of teaching computer science" continues to be used in the names of training courses, textbooks, regulatory documents. An important role in the development of computer science teaching methods was played by didactic studies of the goals and contents of general cybernetic education, accumulated by the domestic school before the introduction of the subject of computer science, the practical experience of teaching

students the elements of cybernetics, algorithmization and programming, elements of logic, computational and discrete mathematics, etc. In accordance with the general goals of teaching, the methodology of teaching computer science sets itself the following main tasks: to determine the specific goals of studying computer science, as well as the content of the corresponding general educational subject, and its place in the curriculum of high school; to develop and offer the school and the teacher-practitioner the most rational methods and organizational forms of training aimed at achieving the goals; consider the totality of computer science teaching aids (textbooks, software, hardware, etc.) and develop recommendations for their use in the practice of the teacher. A number of publications rightly noted that over a very long period the content of the methodological training of a future computer science teacher was the weakest part (and the most poorly provided part) of his professional training. The content of the subject of MPI defines its two main sections: the general methodology, which examines the general theoretical foundations of the methodology of teaching computer science, the combination of basic software and hardware, and the private (specific) methodology - methods for studying specific topics of the school course in computer science on propaedeutic, basic and core stages of training. The methodology of teaching computer science is a young science, but it is not being formed from scratch. Being an independent scientific discipline, in the process of formation it absorbed the knowledge of other sciences, and in its development it relies on the results they obtained. These sciences are philosophy, pedagogy, psychology, age-related physiology, computer science, as well as generalized practical experience in the methods of other secondary schools. As N.V. notes Sofronova, "the teaching of computer science at the modern level is based on information from various fields of scientific knowledge: biology (self-governing biological systems such as humans, other living organisms), history and social studies (social systems), the Russian language (grammar, syntax, semantics and etc.), logic (thinking, formal operations, truth, falsehood), mathematics (numbers, variables, functions, sets, signs, actions), psychology (perception, thinking, communication). " In the context of global informatization of all branches of human activity and the penetration of informatics into all other sciences, we can safely say that the teaching methods of informatics are connected with almost any science. This connection was especially strengthened in connection with the transition of the system of general secondary education to specialized education: no doubt, elective computer science courses will be in demand in all profiles and school disciplines. Goals and objectives of teaching computer science at school The main goals of teaching computer science at school are formulated in normative documents. However, it should be noted that both the subject and content of the computer science course, as well as its objectives, are still widely discussed and debated. The first draft of the state educational standard in computer science (1997) notes three aspects of the general educational significance of the course and, accordingly, three areas in teaching computer science: - "worldview aspect" related to the formation of ideas about a system-information

approach to the analysis of the world, the role of information in management, the specifics of self-governing systems, the general laws of information processes in systems of various nature; - “Algorithmic (programmer's) aspect”, which is now associated more with the development of schoolchildren’s thinking; - "user" aspect associated with the formation of computer literacy, the preparation of students for practical activities in the context of widespread use of information technology. " Pedagogical functions of the computer science course The pedagogical functions of the computer science course, like any educational field, as well as the school subject reflecting it, are determined by the contribution of the educational field to solving the main tasks of general education: • formation of the foundations of a modern scientific worldview;

• development of thinking;

• preparing schoolchildren for practical activities, work and continuing education.

Conclusion: Given the above problems, at the moment the robotics program at school is still not available everywhere. However, even without the use of special equipment, designers, and real robots in school programs in computer science and ICT, it is worth starting a study of the introduction to robotics. This will make it possible to familiarize students with the subject, and will also help in further steps in this field of knowledge. In this case, it is enough to conduct only two classes, after which the children will be able to independently engage in robotics. The basics of robotics for children in elementary school will allow students to understand what a robot is and how it works. Also, children will be interested to know that the concept of "robot" was invented by science fiction writer Karel Chapek in the distant 1920. These are the basics of robotics, allowing you to plunge into a world full of amazing inventions and high technologies that instantly excite a huge interest in this science in children. In addition, the basics of robotics will help children who choose to study robots in further education. Technologies do not stand still, they are constantly evolving, and it is entirely possible that it is your child or student who will construct a nanorobot that can treat complex diseases. The program of robotics at school is a huge step towards the technologies of the future, towards the development and perfection of technologies.

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