

INFORMATICS TEACHING TECHNIQUE AT ELEMENTARY SCHOOL OF THE REPUBLIC OF UZBEKISTAN

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ABSTRACT

The study is devoted to the problem of teaching computer science in elementary school in the context of the rapid development of information educational space.

Keywords: Computer science, elementary school, the content of school computer science, methods of teaching computer science, information, information literacy.

INTRODUCTION

Informatization of society required the informatization of education, the main component of which at the first stage is the school subject “Informatics”. The intensive development of informatics as a science and as a practical activity of a significant number of people influences the definition of goals, the formation of the content of the school subject, its place among other subjects, and the stages of its study.

The problems of the formation and development of the content of school informatics are studied by many authors from the Republic of Uzbekistan (A.A. Abdukadyrov, M.A. Aripov, N.I. Taylakov, D. Kamalitdinova and others). The results of these studies allow us to conclude that it is advisable to build a school subject of computer science on the basis of a concentric principle, and training should include three stages: propaedeutic, basic and core. In the research of N.I. Taylakov, D.Kamalitdinova, and others, the necessity of the propaedeutic stage of teaching computer science in elementary school is substantiated [1-5].

It is proved that when developing methodology for teaching computer science in elementary school, it is necessary to take into account the psychological and physiological characteristics of the development of students of this age group. The methods should be based on visual-effective thinking prevailing in first-grade students and contribute to the development of visual-figurative and verbal-logical thinking in the process. mastering the content of all disciplines, including computer science.

The informatization of society and modern professions place high demands on the intellect of workers, on the ability to use the means of information technology. Skills of work with concrete means of an information technology can be got directly on a workplace, at the same time thinking should be developed in certain terms defined by the nature. When preparing children for life in the modern information society, it is necessary to develop logical thinking, the ability to analyze and synthesize (to isolate the structure of the object, to identify relationships, to understand the principles of organization of the object, to create new schemes, structures and models), which will contribute to the development of information literacy.

As part of the experiment to improve the structure and content of general education, since the 2006/07 school year information technology has been presented in primary schools as a

separate subject with its own structure and content, inextricably linked to the minimum content of the subject of information technology and basic school information technology. Within the framework of the experiment, the goals of computer science education in primary schools are aimed at developing students' initial understanding of the properties of information and how to work with it, in particular through the use of computers[2].

Currently, two directions prevail in defining specific goals and content of information science education at the propaedeutical stage: priority development of skills to use the means of information technologies and development of theoretical knowledge and intellectual skills that determine a person's worldview in the information society.

Many psycho-pedagogical studies and observations by practitioners show that many students have gaps in both actual knowledge (reproductive level) and mental performance (partial search and system levels). This is manifested in the performance of tasks to identify a group of similar criteria, to define the concepts characteristic of these groups, to build up classifications, etc. It should be noted that this leads to difficulties in making decisions in the conditions of multiple choice in practical life.

In developing the concept and content of computer science teaching for primary school students, the results of research by Professor N.I.Tailakov in the field of computer science teaching in primary school were used[5], justifying the possibility of achieving a systematic level of student activity in the teaching of computer science based on an objective information approach. The results of the researches devoted to the object-oriented approach in science (A.A.Abdukadyrova, M.A.Aripova, etc.) and the use of this method in informatics teaching (B.Boltaeva, N.Tailakov, D.Kamalitdinova, etc.) were taken into account during the content selection [1-5].

Information literacy is examined on an interdisciplinary basis and includes a set of skills: to identify possible sources of information; analyze the information obtained using various kinds of schemes, tables, etc. to record the results; evaluate information from the point of view of its reliability "accuracy" sufficiency to solve a problem (task); Recognize the need for additional information use the results of search, analysis and evaluation of information for decision making; create (for this case) information models of objects and processes; build up your own knowledge bank through personally relevant information necessary for your activities in various fields; create your own sources of information; use modern technology when working with information; work with information individually and in a group.

Modernization of general education and the objectives of teaching primary school students

Modernization of primary education involves changes both in the organization of the educational space in order to ensure a full-fledged individual approach to the student, as well as changes in the content of instruction, ensuring greater integrativity of subjects. One of the important priorities (key competence) in the modernization strategy is the development of students' competence in the information technology field.

At the present stage of the development of society, "intellectual professions" are becoming widespread and are losing their inherent exceptionalism. "The growing information flows and high-tech industries require not only performers of a narrow specialization, but specialists with a basic level of education, able to switch from one type of activity to another with extensive communication skills."

N.I Taylakov notes that there is a contradiction between the level of technology development and the level of education of society, and makes a prediction that a new technological structure of society should develop [5].

The purpose of education, formulated in the documents on the modernization of general education, is to develop the child as a subject of relations with people around him, with the world as a whole and with himself, starting from the first stages of education.

The practical implementation of this provision implies a change in the methods and forms of organizing the educational process, the implementation of an activity approach and personality-oriented learning, the widespread use of information technology, therefore, adequate pedagogically sound tools, methods of its use, as well as the willingness of teachers to work with it.

The main objectives of modernization of education is to increase its accessibility, quality and effectiveness. This implies not only large-scale structural, institutional, organizational and economic changes, but first of all - a significant update of the content of education, primarily general education, bringing it in line with the requirements of the time and the tasks of the country's development. The main condition for solving this problem is the introduction of a state standard for general education.

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For the first time at all levels of education, general educational abilities, skills and methods of activity have been singled out, which contributes to both an integrated presentation of the content of school education and its active development. At the stage of primary education, in particular, in the section of cognitive skills, the following are highlighted: detection of changes that occur with the subject according to the results of working with information, analysis of the results based on a comparison of individual attributes of objects, combining objects according to a common attribute (which is superfluous, who is superfluous, the same, like ..., the same as ...), distinguishing between whole and part, correlation of results for the purpose of observation, experience.

In the section of speech activity and working with information, skills are presented: the use of simple logical expressions of the type: "... and / or ...", "if ..., then ...", "not only, but also ...". Elementary substantiation of the stated judgment. Mastering the initial skills of transferring, searching, converting, storing information, using a computer; search (verification) of necessary information in dictionaries, library catalog. Presentation of the material in tabular form. Sorting information alphabetically and numerically (ascending and descending).

The concept of teaching computer science in elementary school based on an object-information approach

The leading goal of our research and concept is the need to develop a methodology for teaching computer science in elementary school students, based on an object-information approach, including the formation of logical thinking techniques (operations: abstraction, generalization,

decomposition and hierarchy), aimed at creating the basics of information literacy. This will form the foundations of the systemic activity of students, lay the theoretical foundation for the subsequent stages of the study of computer science in primary and high school, and contribute to the development of general educational skills of students and their intellectual development as a whole.

The term computer science appeared in the mid-60s almost simultaneously in our country and in France. The subsequent development of computer technology and telecommunications, the widespread adoption of information technology accelerated the development of computer science as a complex of scientific areas that study the processes of collection, storage, transmission, processing of information.

The formation of the initial theoretical foundations and concepts of computer science began even before the appearance of the first computers. Computer science owes its development to a number of sciences, including mathematics, communication theory, economics, electronics, control theory, linguistics, and especially cybernetics.

In publications, there are four meaningful understandings of the term computer science: science, the field of national economy, the sphere of human activity, and technology.

Informatics is a fundamental natural science; its object is information processes in the world around it; its subject are: formal systems modeling information processes; mapping formal systems to the architecture of computing (computer) systems (modeling formal systems) using its methodology is a computational experiment. ”

The main tasks and stages of experimental research

In pedagogical science, an approach is adopted in which a pedagogical experiment contains a number of substantive stages: search and ascertaining, the main task of which is to collect and analyze the necessary empirical information to clarify the research hypothesis, as well as the formative stage on which the theoretical model is built and its empirical verification is carried out.

The experimental study presented in the work was carried out for more than ten years and had several time steps (1990 - 1994). At this stage of the research, search, stating and formative experiments were carried out, which made it possible to formulate a hypothesis, verify theoretical positions, methodological ideas reflected in the hypothesis. Experimental training in computer science was carried out in the elementary grades of school number 134, Tashkent, about 120 students participated.

Working in collaboration with specialists from the Tashkent State Pedagogical University (TSPU), the author observed how teachers of secondary schools conduct preparatory classes in the upper grades of some Tashkent schools, trying to further facilitate the development of modern technologies for students. Experience has shown that efforts aimed at intensifying computer science training have come up against the unpreparedness of most students to quickly and easily accept new ideas and technologies, and the lack of education in many students of the system of logical thinking methods. In the performance of assignments by students, a contradiction between the need to master and use highly intellectual technological solutions and the underdevelopment of certain aspects of thinking associated with a formal description of objects of the real world clearly manifested itself. Interviews were conducted with students in order to identify their difficulties, tests, testing. The obtained results and the provisions of

psychological science that the development of thinking should go through the appropriate stages made it possible to formulate the goal of the study: to develop a methodology for teaching computer science in elementary school that promotes the development of logical thinking of students and implements the propaedeutic stage of teaching a basic course in computer science.

To achieve this goal, it was necessary to solve a number of problems:

- analyze the main pedagogical theories underlying the education in elementary school;
- identify current trends in the organization and development of the content of primary education, find the place of the new subject “computer science” in the system of subjects traditional for this stage;
- determine the content of the subject “Informatics”, which is the propaedeutic stage of mastering the basic course.

Goalgōl

In the early 90s, a computer science course for an elementary school was not included in the basic curriculum, there were no standard programs. The training of computer science at the junior level in a number of schools was carried out on the basis of studying packages of training programs.

For experimental training, a work program was developed for the course, later called "Computer Science in Games and Tasks" for elementary school. The program reflected the basics of theoretical computer science at an affordable level for elementary school students. Teaching theoretical informatics allows you to answer the question: how to prepare students to the competent use of modern technologies, avoiding harsh professional orientation? Dealing with various aspects of reality surrounding a person, information technologies have a number of methods, approaches, techniques that allow you to analyze and model the world to solve emerging problems. This is an algorithmic approach, and object-oriented analysis, followed by object-oriented design, and supplying computers with knowledge bases for shifting routine mental work onto them, which frees a person for creative activity. By mastering these methods, a person learns to think logically, harmoniously, and systematically.

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