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# THE MAIN DIDACTIC PRINCIPLES OF TEACHING AND THEIR USE IN TEACHING INFORMATICS AND INFORMATION TECHNOLOGIES

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## ABSTRACT

**Didactic Principles in Teaching Computer Science**

In determining the content and structure of the computer science course, as well as in the process of teaching it, it is necessary to observe the basic principles indicated by the general didactics (teaching theory). These include:

- scientific;
- systematic and coherent presentation;
- comprehensibility;
- demonstrability;
- connection of theory with practice;
- activity.
- solid assimilation of knowledge

**Scientific**

Scientific knowledge is determined not by a superficial view of the studied issues or by the number of related information, but by deep penetration into the essence of the issue. All knowledge and information provided to students should be correct and in accordance with modern scientific theory. Informatics is a rapidly developing science. In the next ten years, a lot of new concepts, new theories appeared in informatics, new EHMs and their devices were created. Therefore, the content and structure of the "Informatics" training course should be constantly updated. No matter how elementary the "Informatics" course is, it should always be scientific.

Educators have developed a number of rules for the implementation of the scientific principle.

- to systematically inform students about the news in informatics;
- use of modern scientific terms;
- extensive use of opportunities to familiarize students with the biographies of scientists in the field of cybernetics and informatics (N. Viner, A. Lebedev, P. Yershev, V. Qabulov, etc.), their contributions to the development of science;
- use of historical materials.

Historical material is well remembered. So, with its help, the history of the development of informatics, the processes of formation of its main ideas and methods are remembered. As a result, informatics appears in the eyes of students not as a frozen and formed science, but in a

dynamic creative process. The history of science allows us to see its driving force, to observe the interdependence of scientific knowledge and practical human activity.
This helps students to form a dialectical - materialistic outlook and scientific thinking.
Let's consider several types of use of historical materials in computer training:
1.An episodic journey into the history of computer science. For example, during the topic "Generations of EHM", the teacher tells students about the history of assembly of EHM at the "Algoritm" plant in Uzbekistan.
2. Information about the lives and works of scientists who have greatly served the field of cybernetics and informatics in our country, on the example of academicians V. Qabulov, F. Abutaliev, M. Komilov, professor M. Ziyokho'jaev, M. Aripov, M. Begalov and A. Abdukadirov to give.
3. Review of historical results obtained and discovered in certain periods (a new type of computers, the emergence of this or that programming term, etc.). For example, when learning a programming language, you can talk about Ada Lovelace.
4. Words of great scientists and scholars (thinkers) about cybernetics, informatics and programming. In order to develop patriotic qualities in students, it is extremely useful to introduce them to the materials about the scientific results of the great scientists of the ancient East, such as al-Khwarizmi and Beruni.

**Systematic and coherent presentation**

The issue that is inextricably linked with the issue of scientific presentation of the topic is the systematic and consistent presentation of the topic. The computer science subject should not consist of a collection of unrelated facts and definitions, but a set of knowledge that is revealed to students in a clear sequence. This principle is implemented in practice using the following basic rules:
1. The use of schemes and clusters showing the interrelationships of various topics of the "Informatics" course.
2. Repetition and improvement of previously mastered.
3. It is necessary to recall the previous material to the extent that it is sufficient to explain the new material.
4. When explaining a new material, it is necessary to add only information other than those that are easily, simply and naturally related to it.
5. Constantly monitor the ways and forms of expressing students' opinions.
6. Generalizing and systematizing lessons at the end of each section.

**Understandability**

The principle of comprehensibility comes from the requirements developed by many years of teaching practice. The age, development and available time of the student should be strictly taken into account when describing any scientific topic.
At each stage of education, the student should be given such and such material so that he can absorb and master this material according to his level of development. The range of questions at each stage must be strictly limited.

**Demonstration**

The principle of demonstrability is fundamental and important in the process of teaching informatics, as in the teaching of other subjects. This principle is one of the famous teaching principles that have been used since ancient times.

This principle creates the necessity that, according to it, imaginations and concepts formed in the minds of students should be based on the perception of the studied subject, for example, from a computer.

The teacher's statement, his explanation should include clear, vivid images, and should be reinforced with reliable examples that visually illustrate the essence of the questions being studied.

When solving a problem, repeating, asking students, in all cases, there should be full demonstrability. In addition to pictures on the computer, visualization in teaching is shown through tables, schemes, films, and multimedia video projectors.

**Strong acquisition of knowledge**

1. In modern teaching, thinking is more important than memory.
2. Students should remember only the knowledge they have consciously mastered.
3. Before starting to learn new knowledge, it is necessary to provide students with positive actions.
4. It is necessary to organize the repetition and consolidation of the past in such a way that not only activates the memory of students, but also activates their thinking and feelings.

**Connection of theory with practice**

Practice should serve as the main source for students' knowledge of informatics. This situation is caused by the practical use of EHM in the life of everyone in today's society. At the same time, theory should be in close contact with practice and find its place. Because only practical skills cannot form a knowledge system of informatics without being theoretically enlightened.

Development of students' worldview, formation of thinking can be done only by properly combining practice and theory in computer science education, providing interesting introduction of information on the history of computer science, unity of theory and practice.

**Activity**

Large, complex, and diverse computer science materials can be mastered by students when they are actively engaged. It should be remembered that the educational information provided by the teacher becomes the real knowledge of the student, if it is at least accepted by the students, if it is understandable to them, and if the students evaluate the information given as useful.The teacher should not give knowledge without reprimand, but it is necessary to achieve the formation of the system of knowledge in the active, integrated work process of students. Only when students have active, independent work, we can train enterprising people. To achieve this, the teacher should use active (interactive, progressive) forms and methods of working with students.

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