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Ibrokhimjon Xayrullo ugli Ismonov
Ferghana branch of TUIT
student

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THE ROLE OF COMPUTER SCIENCE IN ORGANIZATION OF EDUCATIONAL PROCESS AT UNIVERSITIES USING COMPUTER TECHNOLOGY

Abstract: In this article highlights of the design of projects like webpages or websites by students demanding strong background knowledge and diligent work with various literary, artistic and other resources to find and choose the necessary material has a specific place in students teaching.

Key words: ICT, computer, science, education, technology, students, higher education.

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Introduction

Today, the development of scientific and technological progress in an increasingly changing world is largely due to the rapid growth in the number of means and means of disseminating information. Currently, it is not difficult to get access to almost any information, any source of knowledge. This determines the main goal of the University course of Informatics — to teach students, using an appropriate set of tools and methods of obtaining information, to gain access to the necessary information, while the main priority in solving this problem should be the formation of a motivational component in human activity.

Based on the above, the subject of "Informatics" is given the role of a special system-forming subject among the training courses. The consequence of this should be such an organization of the structure of consciousness of students, in which the implemented conscious control of the search for information will be subordinated to the goals defined by the personality for its progressive development. The role of the teacher and his influence on personal development is one of the main aspects of education and training of the future professional, who will be able to adapt to the modern information space without much effort. Preparing a student to realize himself as a professionally demanded person, facilitating the process of socialization as a person - is the task of a modern University teacher. The student must clearly

formulate for himself: I know this, I can now study it, I already know how to do it, and I want to do this and for this I have the knowledge, information, there is a reputable teacher who can always seek advice.

Materials and Methods

Based on the analysis of the results of educational activities of students, the analysis of various topics of the course "Informatics" can be concluded: almost all topics of the course contain internal opportunities for the formation of cognitive interests of students. At the same time, the necessary conditions for the development of cognitive activity of students are five criteria for the selection of the content of educational material:

1. The novelty of educational material, the unexpected insights and rules.

Computer science contains great opportunities and is able, like no other subject, to show students previously unknown to them, something that can amaze and surprise them. To demonstrate these opportunities, it is necessary to create a problem situation in the classroom, during which new information is presented in such a way as to cause students to have an emotional perception of the topic. Thus, in the study of the topic "Algorithms", you can use excerpts from famous literary works, which "hidden" types of algorithms (for example, excerpt works. M. Twain "The Adventures of Tom Sawyer": "...with a sigh, Tom dipped his brush in lime, ran it

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over the fence Board, then did the same again...". The movement of the brush in this example is nothing more than a cyclic algorithm, on which the teacher emphasizes, or in the fairy tale of A. S. Pushkin "the Tale of Tsar Saltan..." "given the opportunity to determine the information processes, in his other fairy tale - "the Tale of the dead Princess and the seven heroes" all events are developed exclusively through the flow of information, search engines, information networks. In this regard, it is appropriate to note and highlight the most interesting forms of presentation of the lecture material:

- schematic presentation of the material, using educational literature, which plays the role of reference abstract;

- dynamic slide lecture, which is a complete thematic module, which, in turn, has a complex system of relationships with the ability to exit the menu from any slide. Here each separate slide is a "portion" of information displayed either in static or dynamic mode.

2. The study of the material known to students from a new angle.

When studying the material already known to students, it is necessary to keep in mind that "new" is not always and not only a completely unfamiliar, first encountered object or phenomenon. "New" can be recognized and seen in familiar and well-known objects and phenomena. It is important that the teacher constantly emphasizes this fact and focuses on it. Therefore, the pedagogical task sounds like this: to teach a student to be surprised by the usual (familiar) facts. For example, in the study of the topic "Architecture" it turns out that the principles of the device computer — a model of a person working with information, and that the computer includes devices that perform information functions inherent in the thinking person. Further, analogies are made with other specific devices, thereby turning the process of studying the material (for some of the students already familiar) into an interesting and informative activity.

3. Use in the classroom information from the history of computer science.

To expand the knowledge and erudition of students among the necessary information include biographies of great scientists, the history of significant scientific discoveries, familiarity with popular science, historical literature, journals on the topic, electronic encyclopedias, Web sites. To ensure this task, it is advisable to place a permanent exhibition of computer technology development in the office of Informatics, for example "From abacus to computer", in which abacus and components of third-generation computers are present.

4. Vital importance and importance of the acquired knowledge of real life.

Cognitive activity of students only then you will have a solid Foundation for its development, when the connection between the content of educational

material, and its value in life will find a permanent place in the system of classes; the student always attracts the application of theoretical knowledge, received, for explaining well-known processes, even the simplest ones. The system of practice-oriented Informatics training used by the author allows to implement this criterion in practice, solving applied problems in the classroom, as well as organizing project activities in the classroom, special courses and after hours.

5. Introduction of students to modern scientific achievements.

Computer science is one of the fastest growing Sciences. To maintain interest in the subject and the development of cognitive activity of students (familiarity with new software products, new information services on the Internet, etc.), it is necessary to constantly appeal to modern achievements in the field of information technology. The priority role is given to group and frontal forms, taking into account the principles of independence, differentiation, individualization, cooperation in their activities.

The organization of active cognitive activity allows to increase the efficiency of classes and create a favorable psychological climate, to provide a stable positive motivation of students to study the subject and to study in General.

Integration of knowledge in the classroom in computer science and interdisciplinary communication.

The problem of organization of interrelation of the taught disciplines in all their diversity is one of the most urgent problems of modern didactics, psychology and teaching methods. Solving problems - specific models of phenomena - in the classroom for computer science, is one of the most powerful forms of implementation of interdisciplinary connections of computer science with other Sciences.

Methodological interdisciplinary connections - instrumental and methodical - reflect the unity of forms, means and methods of the process of cognition of the surrounding world, the study of academic disciplines of the program. Their use is of great importance for the organization of transfer of methods of solving problems from subject to subject, the implementation of creative development of students.

Types of interdisciplinary connections used in computer science classes can be divided into three groups, depending on the stage of studying computer science:

- at the preliminary stage are used tasks of extracurricular work in Informatics (quizzes, contests, puzzles, anagrams, crosswords, chainbody, games);

- at the basic stage, it seems appropriate to solve problems from various Sciences (mathematics, geometry, physics, chemistry, biology);

- at the profile stage, the study of computer technologies of information processing allows the use

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of tasks in Economics, ecology, mathematical analysis, environmental management in the construction of predictive models, modeling of various phenomena and processes.

Generalization of knowledge from various fields of knowledge in the classroom on Informatics is implemented in integrated courses in various subjects. When non-standard forms of implementation of the tasks arise, respectively, and non-standard forms of lessons.

The establishment and strengthening of interdisciplinary ties, and creating the conditions for perception and understanding of information processes in society, nature, knowledge, the formation of the information picture of the world are the most important and significant educational objectives of computer science and information technology.

The challenges facing modern education require overcoming the existing fragmentation between academic disciplines. The main and system-forming role in this process should be given to Informatics. Each scientific discipline has its own inherent combination of formal and informal methods of modeling of phenomena, procedures of proof and explanation, and only computer science is able to easily overcome interdisciplinary "barriers", to enrich all areas of scientific knowledge.

Technology of level differentiation. Differentiation of the content of the course of Informatics is carried out in the University in two forms: level and profile. Level differentiation is an in-depth study of computer science in the physical, mathematical, economic and telecommunication profiles of training, and for humanitarian and chemical and biological profiles of training are taught only the basics of computer science.

The integration of knowledge in the lessons of computer science allows to implement level differentiation as a form of training at various planned levels. Here it is desirable to choose one or another type of implementation of the use of knowledge, information from other areas and subjects (integrated environment, non-standard form of the lesson, interdisciplinary communication).

Profile differentiation is directed specialization of the content of education.

The curriculum, which provides for the possibility of using different types of classes, provides for the creation of pedagogical situations of communication between teachers and students, during which each student (regardless of his / her personal abilities) can show initiative, creativity, research approach in the course of studying and processing of educational material.

When studying the course of Informatics, the content of training should ensure the transition from informatization of education to the formation of information culture. Information culture of the user is the ability of a person to solve a specific problem with

the help of information technology. The curriculum should not be a rigid set of completed topics, but a number of thematic areas, each of which requires an appeal to a particular aspect of the topic.

The essence of teaching computer science is to teach not so much programming and the use of specific programs, as the ideology of the computer world as a whole. The latter suggests that in the classroom you need to consider, say, not a separate material about binary arithmetic and not working with a specific text or graphics editor, but in General the ideology of presenting information in the PC, the ideology of working with text, the ideology of machine graphics.

Each scientific discipline, due to its individuality, is characterized by a special combination of formalized and non-formalized methods of modeling phenomena, procedures of proof and explanation. Computer science, which includes a fundamental and applied aspect, allows:

- to form a broad, holistic, encyclopedic view of the world and the place of man in it;
- allows a person to be protected socially, flexibly rearranging the content and direction of its activities;
- subject overcomes fragmentation and isolation due to the interdisciplinary connections;
- allows you to clearly define the place of Informatics in the General system of knowledge;
- integrate knowledge from different fields in the study of computer science.

One of the main values of the subject "Informatics" is its applied side: the right to exist have only those knowledge that are applied in practice. This statement is the basis of the system of practice-oriented learning.

Priority is given only to those educational tasks that are not only aimed at acquiring knowledge of specific facts, properties, rules, but also form students' ability to see their application and use this knowledge in everyday life. Organization of project activities in the classroom. A special place in the formation of practical skills of students is the organization of project activities in due time. During the preparation of the project, students are able to independently acquire the missing knowledge from different sources, learn to use the acquired knowledge to solve their cognitive and practical problems, acquire communication skills for teamwork, develop their research skills to identify problems, collect information, observe, analyze and so on), systemic thinking.

The form of protection of projects can be in the form of a conference, presentation or exam. Regardless of the form, the protection of the project contributes to a deep, conscious assimilation of basic knowledge, which is ensured by their universal use in different situations.

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Conclusion

As an additional education in the organization of project activities, the author uses the opportunities of the global Internet through participation in a variety of telecommunication projects. This form of work allows you to solve a range of tasks: subject, General, developing, educating. A special place in the training of students is the preparation of such projects as a Web-page or a Web-site, which requires serious basic knowledge and painstaking work with various literary, art, artistic and other sources for the search and selection of the necessary material. Mastering the

technological side of this process is a strong psychological and motivating tool and allows students to better understand and assimilate the processes of transmission, processing and storage of information, forms their strong interest in information technology. Based on the above, it can be concluded that the development of computer science, based on the use of knowledge, which is confirmed by practice, is particularly promising in terms of further development of new technologies, opportunities for the implementation of elements of interactivity, computer graphics and animation, programming, etc.

Scientific adviser: Karimov Ulmasbek, senior teacher of Ferghana branch of TUIT.

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