

Continuity and Continuity in Training Informatics and Information Technologies in School

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Abstract

The paper studies the issues of continuity and continuity in the teaching of computer science and information technologies in general schools of the Republic of Uzbekistan. The components of information and communication competence of students are determined.

Keywords. Continuity, continuity, informatics, information technology, component.

Introduction

Currently, the Republic of Uzbekistan has developed a number of objective prerequisites for the transition to the state of the information society. The most significant of them can be called the rapid development of the material base of the information sphere, the informatization of various branches of production and management, active entry into the world information community, high personnel and scientific and technical potential, and the preparedness of public consciousness for the need to obtain deep knowledge in the field of information technology.

The Ministry of Public Education of the Republic of Uzbekistan has developed programs that reflect what a modern graduate of the school should master in a basic computer science course. The study of computer science in higher education involves its further disclosure as a fundamental scientific discipline. The State Standard for Informatics and Information Technologies gives priority to an active approach to the learning process, the development of a wide range of general educational and subject skills among students, mastery of the methods of activity that form cognitive, informational, and communicative competencies.

Continuing education is the constant improvement of human knowledge and skills, caused by the desire to be relevant in the existing professional and social environment.

Main Part

Continuity in education is considered by scientists in philosophical, psychological, pedagogical, methodological aspects.

In pedagogy, continuity is considered from various positions [1]:

- as a general educational principle of a continuous learning process, which requires an inextricable connection between the past, present and future between individual parties to the learning process, to expand and deepen knowledge, transforming them into a consistent system of knowledge, skills, and abilities; as a principle of progressive-upward deployment of the entire learning process in accordance with the content, forms, working methods with the obligatory analysis of the qualitative changes of students;
- as a condition ensuring the establishment of relationships between goals, content, methods, teaching and upbringing tools, which allows each, a new stage of learning to be built on the basis of past experience, facilitates the adaptation of students to the learning conditions at the next stage;
- as a process of continuous development of personality, self-education, self-realization, change of needs, motives;

The principle of continuity is universal, associated with the principles of scientific, fundamental, consistent, continuity.

Continuity is multifunctional: developing continuity in teaching computer science is necessary for the development of logical, algorithmic thinking, educational continuity - for self-education, confidence in one's abilities.

In our opinion, the continuity in teaching computer science and information technology (IT) is that a common logic of goals, tasks, consistency of content is built up, technology is becoming more complicated, conditions are provided for transferring knowledge and skills to new activities. Education is based on the concentricity of studying the material, which allows you to successfully switch from one educational program to another, more complex, which requires standardization of educational programs based on the unity of strategic goals, tasks of teaching computer science and IT.

The study showed that during the existence of computer science (40-45 years) as a scientific discipline, its state has changed. The process of filling the content of the studied material in computer science and IT is significantly lagging behind the development of computer technology, which has been improving particularly rapidly in recent years. That is why fundamental knowledge and systematization of skills and abilities, development of independent work experience among students in the field of informatization and computerization are necessary.

In connection with the provision of schools with modern computer technology, local and global networks; the introduction of computer science in primary and basic schools; the development of teaching and didactic materials with appropriate computer programs. The change of priorities in characterizing the goals of teaching computer science and IT is dictated by the development of science, hardware and software. So, at the stage of formation of the subject, when more attention was paid to the technical and practical orientation of teaching computer science, the ideas about “computer literacy” were relevant. The development of the Internet and its use in the educational process has updated the idea of “communication competence”. This competency is necessary to solve various theoretical and practical problems, its formation develops thinking, prepares the student for the use of modern information and communication technologies in educational, professional and life activities.

Identification of the specificity and generality of the concepts of “information literacy”, “information culture”, “communication competence” allows us to formulate a working definition of information and communication competence as an integrative personality characteristic of a student, represented by theoretical knowledge, technological skills used to process various sources of information, and also available with computer technology, application programs, information and communication technologies.

In the course of work, the components of information and communication competence (KIC) of students:

- A substantial component ensures the formation of a systematic approach to the information analysis of the world around us, the development of mental activity;
- The technological component reflects the skills to perform both individual operations and the acquisition of experience with standard computer programs, information technologies;
- The activity component characterizes practical skills in various fields of activity related to information and communication issues, with the independent use of computer programs for training and self-training in the development of other disciplines, in professional and life activities;
- The motivational component includes the student’s internal position, his goals, the desire to study the material, the psychological readiness to deepen and improve the knowledge gained in the field of computer science and IT at school.

In schools, a continuous course in the study of informatics and ICT should be implemented, providing for three stages [2,3]:

- propaedeutic (grades 5-7),
- basic (grades 8–9),
- profile (grades 10–11)

Continuous study of ICT involves the development of theoretical and practical parts.

The theory gives a concept of information and information process, mathematical and computer modeling, construction of algorithms, presentation of any information in binary form.

The practical part of the course is aimed at developing students' skills in using information technology tools. This helps students in other subjects. The development of cognitive interests, intellectual and creative abilities through the development and use of computer science methods and ICT tools in the study of various educational subjects, forms the human information activity.

When moving from one stage to another, the level of complexity of the studied subject increases.

With this approach, from one level of instruction to another, the sequence and effectiveness of studying ICT at all levels of instruction is observed.

The ICT course for students in grades 5-7 is focused on the formation of an active personality motivated by self-education - the ability to gain access to various reference systems, electronic libraries, other information resources, the ability to independently and motivatedly organize their cognitive activities.

One of the main goals of studying computer science and ICT in a school for a given age category is to use elements of cause-effect and structural-functional analysis, to determine the essential characteristics [2,3].

An important aspect of ensuring continuity is the pedagogical interaction of school teachers of computer science, which is carried out through joint seminars, conferences, and round tables with discussion of common issues in teaching computer science and IT at school.

The principle of integration in teaching computer science and IT ensures the strengthening of the links of the formed components of information and communication competence, contributes to their universalization and ensures the integrity of knowledge, development and consolidation of computer skills.

The principle of coordination is to find a rational relationship between the actions of the student and teacher. The activity of the students is aimed at the process of independent search for information, when they themselves acquire new knowledge, research the facts and make accessible conclusions and generalizations, specify knowledge, and develop skills.

The principle of a differentiated approach in training makes it possible to master the educational material at different levels, depending on basic knowledge, on the level formed by the KIC, on the individual characteristics of the students.

The principle of strength ensures the consolidation of theoretical knowledge, the development of technological skills and practical skills and the development of cognitive activity of students in the field of computer science and IT. The material is better understood, remembered and used later in practice, when it is structured, the main thing is highlighted in it, it is fixed by practical examples.

The principle of accessibility allows you to take into account the characteristics of the development of students to exclude intellectual and moral overload. Therefore, accessibility depends on the content of the educational material, on the methodological structuring, on the educational activities organized by the teacher.

The principle of science is aimed at the formation of scientific concepts, taking into account the development of modern science. Fundamental, solid scientific knowledge requires their confident use for a long time.

The systematic principle involves the teaching and assimilation of knowledge in a certain order, system, each element of the educational material is logically associated with others, as a result of which a close relationship is established between the passed, present and future material.

When teaching computer science and IT, the principle of the connection of learning theory with practice is implemented. Computers are rapidly improving, being implemented in all spheres of life, therefore, to improve the effectiveness of acquired knowledge and skills, it is necessary to develop their real application.

The Results Led To The Following Conclusions:

1. It has been established that continuity in teaching computer science and information technology at school is an important principle that increases the level of formation of students' information and communication competence.

2. It was revealed that the unity of goals, objectives, methods, means, principles, forms, learning conditions, content matching, determining the effectiveness of teaching computer science and information technology in the school leads to continuity.
3. It is determined that the planning of the learning process, taking into account the existing knowledge, skills, can effectively increase the information and communication competence of students.
4. For the implementation of continuity in teaching computer science and information technology at a school, the joint participation of school computer science teachers in the work of city associations, seminars, conferences, round tables, the development of common effective tools, forms of training, and information and communication assessment methods student competency.

Conclusions

The conclusions obtained in the study do not pretend to be an exhaustive solution to the problem under consideration, but represent one of the options for approaching the urgent task of modern training in computer science and information technology. Further research may be related to ensuring continuity of relations, conditions in teaching computer science and information technology, taking into account the profile course of studying these disciplines at school.

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