

Improving The Efficiency Of Mastering The Programming Language Based On Game Technologies

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Annotation. This article deals with the information about specific techniques and methods that allow improving the use of interactive methods in the educational process in higher education institutions, increasing the effectiveness and quality of education, that is, making the lesson unusual, richer and more interesting. The author assumes that interactive education allows students to actively participate in the learning process in order to get the most information and knowledge from their teachers, as well as use various methods of presentation of practical demonstrations and exercises.

Key words: education, technology, interactive method, teacher, student, lesson, cognitive activity.

Introduction. Today, in the field of education, modern pedagogical technologies, the experience of developed countries are widely used, the educational process is conducted on the basis of innovative approaches, multimedia tools, information and communication technologies are used rationally, and the process of education and exchange of experience at the international level is developing consistently. To improve the quality of education in higher education institutions, it is not enough for a teacher to have deep knowledge in his specialty and to impart a large amount of knowledge to an audience full of thirsty young people. According to the results of many studies, a new approach to education, the use of interactive approaches in teaching students is one of the most effective ways to impart knowledge. In simple words, students easily perceive, understand and remember the given materials only when they are actively involved in the learning process.

Based on this, the main methodological innovations require the use of interactive teaching methods. Especially in today's rapidly developing era, the most optimal way to increase the effectiveness of education is to organize training using interactive methods. Based on the students' life position and professional self-determination, the professor teacher of each higher education institution asks how to organize the educational process in order to form an active attitude to learning and cognitive activities in students. In this regard, what methods or teaching technologies can have the most effective effect on the educational process? Today, the use of pedagogical technologies is important in solving these problems in the educational process.

Literature review. Active use of advanced pedagogical technologies in the educational process, increasing the effectiveness of education, analysis and implementation is one of the important tasks of today. One of the reasons for this is that, until now, in traditional education, students were taught to acquire only ready-made knowledge, but modern technologies allow them to search for the acquired knowledge on their own, study and analyze it independently, and even draw their own conclusions. teaches them to release. A number of scientists have conducted scientific research on the problem of actively using advanced pedagogical technologies in the educational process and determining the essence of improving the quality of education. According to the researcher B.T. Likhachev in his scientific work states that "Pedagogical technology is a set of psychological and pedagogical techniques, a special collection of forms, methods, methods, teaching methods, educational tools. At the same time, it also means the organizational-methodical factor of the pedagogical process" [23; 24-b].

Teaching computer science with the help of interactive technologies makes it possible to improve the cognitive activity of students, develop the ability to learn independently, develop

teamwork skills, develop and form communication skills, and most importantly, increase educational motivation [1]. Teachers are responsible for encouraging students to actively participate in classroom activities, apply their knowledge, and think for themselves in order to retain long-term memory [4].

These methods improve students' knowledge acquisition, and also help increase interest, energy, team spirit, and freedom of expression. Teachers encourage their students to accept tasks positively, perform them better, and produce positive and desirable results. The qualities of an active teacher include being observant, sensitive, agile, encouraging [5] and they should always work with an open mind so that they can motivate their students better and more effectively. The main criteria of interactive education: informal debates, the opportunity to describe and express educational material freely, the number of lectures is small, but the number of seminars is large, student initiative, working in small groups are of particular importance in increasing the effectiveness of educational work [3].

Today, the development of the national innovation system and the improvement of its innovation potential are the most important factors of the country's economic growth. In interactive lessons, the role of the teacher is reduced to the direction of student activity to achieve the lesson goal.

The teacher also develops a lesson plan (usually, these are interactive exercises and assignments, during which the student learns the material). An important difference from the usual interactive exercises and tasks is that by completing them, students not only consolidate the learned material, but also learn new material.

Thus, interactive education is a unique form of educational activity organization, one of the goals of which is to provide favorable conditions in which each student feels his success, intellectual abilities, learning efficiency, as well as the exclusion of the domination of thought over others and the availability of ready-made methods of operation. Organization of interactive education involves simulation of life situations, use of role-playing games, general solution of issues based on analysis of situations, the flow of information penetrates the mind and causes it to become active. It can be seen that the structure of an interactive lesson is different from the structure of a regular lesson, which requires the professional skills and experience of the teacher. Therefore, the structure of the lesson often includes only elements of the interactive educational model - interactive technologies, that is, specific techniques and methods that make the lesson unusual and richer and more interesting.

According to Khanin, it is stated that: "Interactive training is a technology of analytical and reflective cooperation of students and teachers, which consists of close cooperation of discussion, exchange of ideas and ideas of all participants on the discussed problem and helps to acquire the necessary skills (practical, communicative, social)" [32].

The model of learning technologies in the game is to build an educational process by involving the student in the game. The use of games in the educational process is always contradictory: learning is a goal-directed process, and games, by their very nature, have an uncertain outcome. Therefore, the task of the teacher is to subordinate the game to a certain didactic goal. Recently, in the organization of the game, there has been a shift of attention from dramatization (forms of the game, external signs) to its internal existence (events, modeling of events, performance of certain roles). The final model of education, in addition to the main didactic goal, is also designed to achieve a number of goals: to provide control over the spread of emotions, to give the student the opportunity to self-determine, to develop creative abilities to help develop, to provide opportunities to improve ideas, social cooperation skills, and to provide opportunities to express one's opinions. The emergence of the idea of the pedagogical processes of the teaching process in higher education is primarily related to the introduction of the achievements of scientific and technical development into various fields of theoretical and practical work. A game is a type of activity in situations aimed at restoring and mastering social experience, in which self-control of behavior is developed and improved [62; p. 156]. Games used in pedagogical processes, like any games, have their specific purpose and result.

The purpose of the technology is to form the skills of logical and critical thinking and compromise in students, and to determine their concepts related to the problems of student rights [37; 70-p].

Discussion. Game technology is an educational technology based on simulation and modeling of role-playing behavior of game participants in the process of solving problematic educational issues of a sufficiently high level. Play is currently an “Exemplary” type of human activity, which includes positions for the introduction of learning and cognitive activity. This situation shows the essence of active learning methods, which are usually called “Games”. The game is a mechanism for storing and later transmitting practical and moral social experience combined with certain requirements of behavior in certain situations. The games themselves are a solid foundation for creating simulation activities to solve some professional problems. A person performs the following tasks through game activity in his life [24; 278-b]:

- a person's interest in a certain activity increases through the game;
- games help to acquire the communicative culture of a person;
- makes it possible for a person to show his talent, interest, knowledge and identity;
- prepares to overcome various difficulties encountered in life and during the game, develops the skills of getting the ball right;
- in the course of the game, an opportunity is created to acquire behavior in accordance with social norms, to eliminate shortcomings;
- prepares the ground for the formation of positive qualities and qualities of a person;
- attention is paid to the study of the system of values important for humanity, especially social, spiritual-cultural, national and universal values;
- the development of the culture of collective communication among the participants of the game is envisaged [24; 278-p].

In the game, the conditions for the development of norms and rules of human life occur by repeating and enriching the social experience of previous generations, virtual simulation of the playing field, voluntary acceptance of the game type. The concept of “game technologies” includes a fairly wide group of methods of organizing the pedagogical process in the form of various pedagogical games. Adhering to the norms and rules of a certain role, unknown strategies for solving problems in the nature of the game encourage the participant to learn new information, and all this justifies the relativity of the relationship between the game and the person.

In terms of the most important educational task, game technologies have the potential to form a subjective position of the student in relation to his activity, communication and himself. The game is currently experiencing a period of development as one of the oldest pedagogical tools in all areas of education [56; p. 64]. Interest in the game arises due to changes in pedagogical theory and practice and the spread of educational problems, as well as it is determined by the multifaceted social and economic needs of individual development. In the game model, the teacher acts as an instructor (acquaintance with the rules of the game, tips), a judge (correction and consultant on the distribution of roles), a coach (consultant on speeding up the game), a leader (discussion organizer).

Types of game forms are as follows:

- role-playing game;
- simplified court session;
- travel game;
- role group;
- imitations.

The participants of the educational process of the game form are organized in different conditions compared to the traditional forms of education. In this, students are given maximum freedom of intellectual activity, which is limited only by the specific rules of the game. Students choose their role in the game; asking for assumptions about the possible development of events, they create a problem situation, take responsibility for the chosen solution and look for ways to solve it. The participants of the educational process of the game form are organized in different conditions compared to the traditional forms of education. In this, students are given maximum freedom of

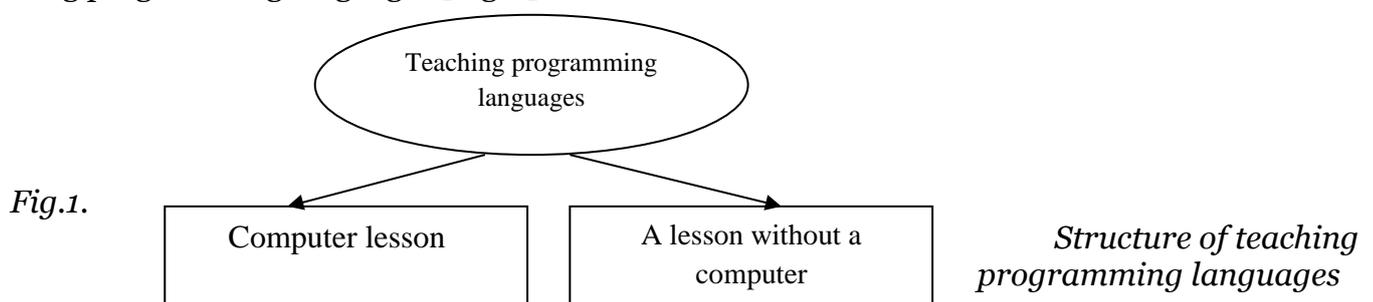
intellectual activity, which is limited only by the specific rules of the game. Students choose their role in the game; asking for assumptions about the possible development of events, they create a problem situation, take responsibility for the chosen solution and look for ways to solve it. The psychological correction in the game is that if all students have learned the rules and plot of the game, each participant of the game knows not only his role, but also the role of his partners, when the process and purpose of the game are combined they occur naturally. The entertainment function of the game is responsible for creating comfort for students during training, a suitable atmosphere and a cheerful mood as a protective mechanism. Fun builds skills for activities that allow people to escape the daily worries and responsibilities of work.

In the process of the game, students are able to concentrate their thoughts, to be able to get the right goal, to think independently, to develop attention, and to strive to acquire knowledge [24; 278-b]. Thus, the game is a historically determined natural element of culture that increases the effectiveness and quality of education. Educational activity is relevant, but still recedes into the background. Students are more interested in relationships with their peers, and this is not accidental, because communication is the leading activity during this period. Disruption of communication with peers, tension in relationships, personal problems, low self-esteem, and unclear social role can cause deterioration of academic performance. It is very important to identify the behavior disorder in time and provide timely help to the teenager.

Research Methodology. Application of game technologies in teaching programming languages. A number of different factors have been explored in the various programming literatures, as well as the knowledge and skills that a novice programmer should have of programming experts. Beginners spend little time planning and testing their code and, if necessary, try to fix programs with small local fixes instead of more extensive editing. Novices' knowledge depends on the context rather than the general text, and they often need to be able to apply what they have learned [35].

Experience shows that for many students, the problem occurs at the initial stage of learning, when they need to learn and apply abstract programming concepts such as control structures to create algorithms that solve concrete problems. In this initial process, special attention should be paid not only to the development of specific programming skills, but also to the improvement and consolidation of knowledge and skills acquired in previous years [28].

As a computer programming course, it requires cognitive and metacognitive skills. It requires the student to understand the syntax and semantics of the chosen programming language and to apply their creativity to problem solving. It combines logical thinking with creativity [27]. We all know that in group forms of teaching (both without computers and with computers) the activities of students are managed by the teacher. In order to improve students' knowledge, skills and abilities, as well as to teach them to think creatively, to expand their thinking, we can divide into two parts teaching programming languages [Fig. 1].

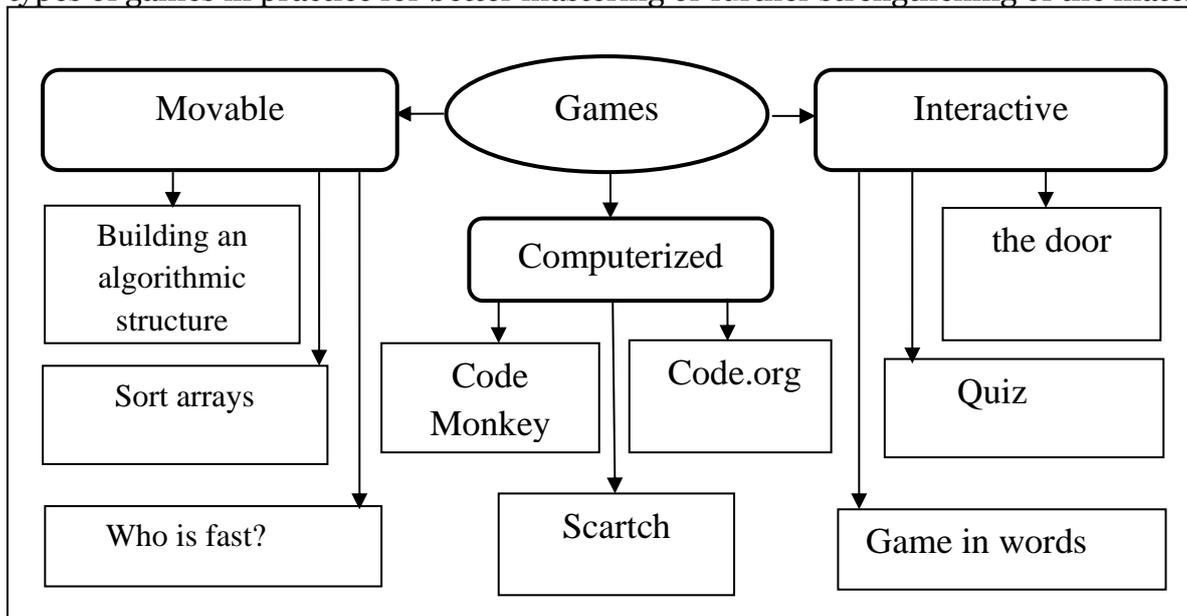


Computer lesson - working with a computer is aimed at forming the skills and competencies of students in working with the program.

A lesson without a computer - working without a computer includes tasks aimed at developing logical and algorithmic thinking of students.

In order to increase the quality and efficiency of students' learning in the higher education system, in the process of studying certain topics in the organization of the educational process of professors and teachers who are engaged in pedagogical activities in this educational system in the

era of globalization of information technologies and communications. it is advisable to use certain types of games in practice for better mastering or further strengthening of the material [Fig. 2].



build any algorithmic structures (linear, conditional, cyclic). At the same time, one of the important factors that increase educational efficiency is the use of game technologies at different stages of the lesson in teaching programming languages. A practical program website (<https://prog-int.uz/>) for improving independent teaching of programming languages based on interactive methods has been developed (Fig. 4). In order to learn programming languages, this site allows students to get acquainted with the theoretical part of the subject first, and then to strengthen their theoretical knowledge based on game technologies through practical training. Also, based on interactive methods suitable for each lecture, opportunities for effective learning of knowledge were created using test, match, crossword, brainstorming, and working in small groups. This, in turn, leads to effective and high-quality acquisition of knowledge and skills based on game technologies in relation to software education.



Fig.4. Program for independent learning of programming languages based on interactive methods

Games used in pedagogical processes, like any games, have their specific purpose and result. The purpose of the game technology is to form the skills of logical and critical thinking and compromise in students and to determine their concepts related to the problems of student rights. Game technology is important in the educational process, because it helps to develop the interest and activity of students, and it also performs a number of functions. For example, the use of game technology “Find the match” in teaching the Python programming language stimulates students' mental activity, develops attention and interest in the subject, and is one of the ways to combat student passivity [Figure 3].

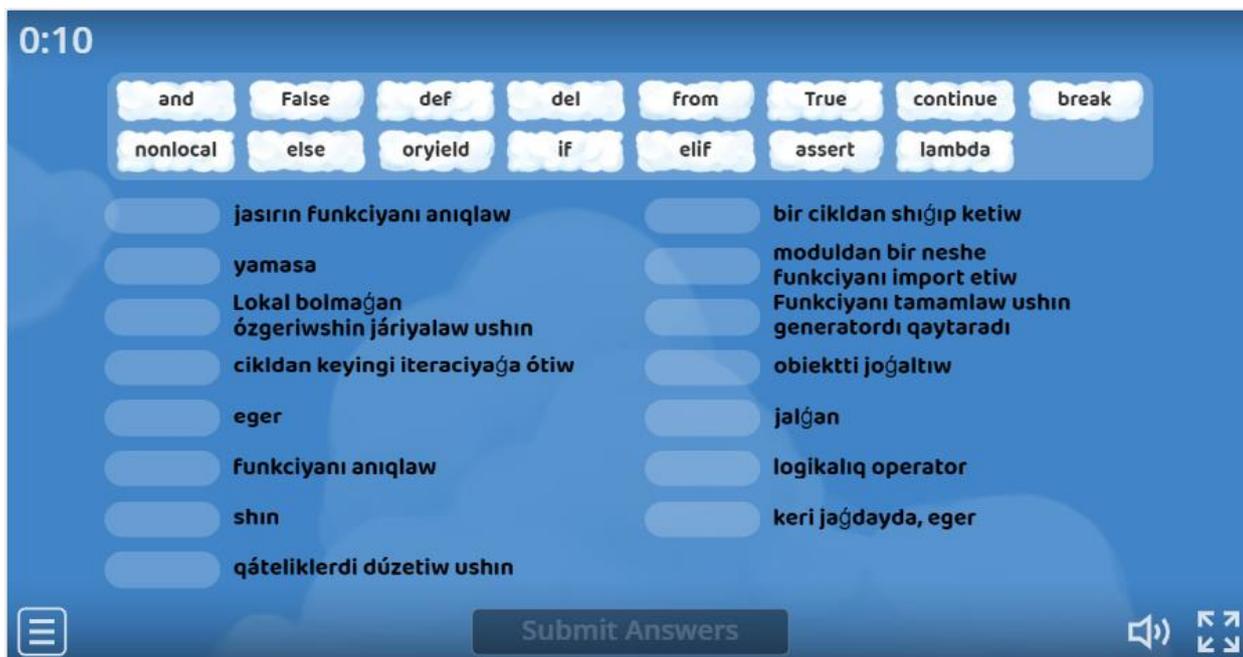


Fig 3. Using game technologies in teaching programming languages

It is reported that a lesson or a subject of a lesson is structured in the form of a competition, and every student has a desire to win, and for this they must have good knowledge. When studying a very complex topic like programming, you can offer students tasks in the form of the above games and they are completed by students, in pairs or in teams.

After analyzing the scientific work of professors of higher education institutions, about the interaction of the educational environment at different levels, the optimal option of the model of interaction between the teacher and the student is the programming science by students. determined within the study. The methodology of using game technologies was formed in the educational process. In the educational process, PTE (Personal Teaching Environment) and PLE (Personal Learning Environment) have been improved based on a number of interactive methods, having universality, flexibility, variability, multidimensionality, cyclicity and communication functional features. The implementation of private cloud provisioning learning environment structures can be presented in the form of hierarchical structures.

Conclusion. The presented model of interaction between the teacher PTE and the student PLE in the organization of programming training allows to create content: storage and distribution, organization of joint activities, management of the student's educational activities and the student's environment. In short, the organization of interactive education leads to simulation of life situations, general solution of issues based on the analysis of situations, penetration of the flow of information and its activity. It can be seen that the structure of an interactive lesson is different from the structure of a regular lesson, which requires the professional skills and experience of the teacher. Therefore, the structure of the lesson includes only the elements of the interactive educational model - interactive technologies, that is, specific techniques and methods that make the lesson unusual and richer and more interesting.

References

1. Seitnazarov KK K. K. I. Development Of Decision-Making Algorithms Based On Irreversible Mathematical Calculations In The Assessment Of Students' Knowledge //NVEO-NATURAL VOLATILES & ESSENTIAL OILS Journal| NVEO. – 2021. – C. 13717-13723.
2. Seytnazarov K. K., Kalimbetov K. I. The processes of organizing teaching students' algorithms and models //ACADEMICIA: An International Multidisciplinary Research Journal. – 2021. – T. 11. – №. 2. – C. 527-533.
3. Seytnazarov K.K., Kalimbetov K.I. Qat'iyimas bo'lgan ma'lumotlarning ko'pligi sharoitida otm talabalarining bilimini baholashda qarorlar qabul qilish/ Komputer texnologiyalari 1 (10).
4. Seitnazarov K.K., Mambetkarimov B.M. Development and application of a digital educational resource for teaching programming in higher education institutions// Mental enlightenment scientific – methodological journal. -JDPU, Vol 05, Issue 03, 2024.
5. Meyrmanovich M. B. MODELING CLOUD TECHNOLOGY STRUCTURES IN THE EDUCATIONAL PROCESS //British View. – 2023. – T. 8. – №. 7.