

ORGANIZING "ROBOTOTECHNICS" CIRCLES IN THE PRIMARY CLASSES WITH VIRTUAL DIDACTIC MEANS.

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Summary

today, the development of the digital economy is considered as the most important factor for the future. The use of robots in the production leads to very high financial efficiency and several times the acceleration of development. In this regard, it is very important to start the teaching of the elements of robotics from the elementary classes of general secondary schools.

In this article, it is explained in detail that the use of virtual didactic tools in the organization of "robotics" circles in the primary classes of the general secondary school will give effective results.

The rapid development of modern information technologies, the improvement of global telecommunication technologies require a creative approach to the attitude of a person to work in the e-learning environment. The development of the ability to adapt to the innovations of the modern world, to prepare the younger generation for the life of a constantly renewing society and to actively participate in the processes of its improvement in accordance with modern requirements is an important professional task of the general secondary educational institution pedagogy.

In the strategy of action on further development of the Republic of Uzbekistan, such directions as further improvement of the system of continuous education, increasing the opportunities of quality educational services, continuing the policy of training highly qualified personnel corresponding to the opportunities of the labor market, increasing the quality and effectiveness of education of general secondary educational institutions are determined, and in this The economic development of the industry, especially the country, depends on the use of human resources creative abilities. At the same time, the formation of creative people is one of the functions of the educational system. Creativity means the ability of an individual to create new, original ideas in any activity. At the same time, the process of developing creativeness is characteristic of different spheres of activity.[2]

In today's modern schools, we need to pay more attention to the study of robotics. This is because in the future high school graduates will find themselves in a working environment full of technology and robots will become an integral part of this environment. Even if children choose a profession that is not related to coding and robotics, the study of these subjects in school gives them analytical thinking, programming, teamwork, team thinking, innovative perception and many other important skills. Today, most advanced schools around the world choose STEAM learning strategies for their students. Robotics develop skills in the design, assembly and management of robotics. During the learning process, children interact with robots and mechanical systems, not being afraid of unfamiliar structures, but learning to control them. Numerous updates aimed at raising the economic and social situation of our country are being applied to our lives day by day. Modern technologies are being introduced in all spheres. In particular, in manufacturing enterprises, machine tools controlled by computer programs are widely used. Even in areas that are dangerous or heavy for human life, computer-based robots are used. It is also possible to meet them in nuclear power plants or chemical enterprises.

As noted above, until today, a certain amount of experience has been accumulated in the development of robotics, however, one of the most important tasks is the introduction of robotics into the structure of Computer Science and Information Technology Educational Sciences. To date there are many programs developed by teachers of educational organizations and heads of the Republican children's technical creativity center "harmonious generation" circle for extra-curricular activities in robotics. During the analysis, we obtained from them that we learned Khodjiboev program for the gang "robotics and electronic toys" is intended mainly for high-class students. In accordance with the program we are offering, the training of the gang "robotics" from a small school age will lead to the achievement of high efficiency in the future. Because in the child from a young age appear interest in discovery, programming, design will be very high. In the elementary classes according to the gang program "robotics", the child learns the elements of robotics using immunity models in interactive mode with the help of Lego DIGITAL DESIGNER, LDRAW , CAD, VIRTUAL ROBOTICS TOOLKIT, TRICK STUDIO programs. Here, greatly contributes to the development of logical, analytical, innovative ideas by helping children to create a virtual model of the child's new ideas which is also helped by his parents.



Table 1. Results of experimental tests in the 16th school of the Bukhara region.

title generally vatnoy schools	indicators	Results of the experimental groups				Control group results			
		At the beginning of the experiment	%	At the end of the experiment	%	At the beginning of the experiment	%	At the end of the experiment	%
Bukhara regional school 16	Great	3	20%	7	46%	5	30%	6	40%
	Good	4	26%	6	40%	4	26%	5	30%
	satisfactorily	5	30%	2	13%	4	26%	3	20%
	unsatisfactory	3	20%	0	0%	3	20%	2	13%

Results of experimental tests in the 16th school of the Bukhara region



Conclusion

During the experiment, classes were organized on the "problem situation", "visual education", "creative activity", etc. Demonstration of a new topic in video lessons on the online circles "Robotics", in the form of creating problem situations, discussions, independent creative thinking, scientific innovation. online seminars. Didactic educational content created using the wordwall.net platform was widely used in the study, analysis and acquisition of new methodological materials on the topic. These educational materials were received with great interest by children, since the main advantage is that they are organized in a playful way. The online robotics course plays a key role in developing children's ability to spend their free time productively, as well as their ability to put them into practice, in increasing the independence and creative activity of students, their constructive technical skills.