

STEAM EDUCATION AS A SOURCE OF CREATING UNUSUAL AND INTERESTING DISCOVERIES FOR YOUNG STUDENTS

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Abstract. *The article will talk about the fact that the STEAM education-based approach is a source of creating new, unusual and interesting discoveries for the reader's youth, and its advantages.*

Keywords: *science, technology, competent, entrepreneurship.*

The acceleration of the development of science and technology in the world, the fourth economic revolution, global challenges, including the transition to the digital economy, are causing new socio-economic, political and cultural changes. This, in turn, creates a strong competitive environment in all areas in the context of globalization and integration, and as a result, sets new demands on the education sector. First, at the moment, all countries, first of all, society, are experiencing changes associated with the adoption of innovative technologies that change the nature of relationships, namely: the rapidly developing digital environment of business and entrepreneurship and the way people live modern changes, changes related to increased global competition among providers of highly competent specialists based on the real requirements of the labor market; changes related to the popularization of international studies of educational quality assessment, the number of participants and the expansion of research areas; according to the results of the international assessment, changes are taking place in connection with the adoption of strategic programs that ensure the sustainable development of countries and industries. Secondly, it is required to find a solution to the problems that have arisen in the educational system, without losing the quality of education, based on advanced foreign experiences, on the basis of new approaches. Thirdly, in the environment of the digital economy, the need for personnel with the skills of the 21st century is increasing, in the era of globalization, it is necessary to educate patriotic individuals capable of ensuring the stable development of our country. Educational programs, taking into account the requirements of advanced national and foreign experiences, international evaluation programs, in order to raise general secondary education to a new stage of development by the President, to train competitive personnel who can lead to sustainable development from national recovery to national advancement, "Improving the quality of general secondary education: content, methodology, assessment and educational environment", the tasks of improving the teaching methodology and the education quality assessment system were defined. According to him, in item 159 of the state program, until June 1, 2020, "Development of the National Curriculum of General Secondary Education", in which "Organization of international studies in the field of evaluation of the quality of education in the public education system" "The Program for International Student Assessment (PISA) aimed at assessing the literacy level of students in reading, mathematics and natural sciences" was set to create a national system for evaluating the quality of education in general education schools. In order to ensure the implementation of these tasks, the composition of working groups for the development of the project of the National curriculum of general secondary education was formed and the Roadmap was approved. The National Curriculum of General Secondary Education is based on the current

state educational standard, critical analysis of curricula, feedback from the general public on the content of textbooks, the next stage of education, and the real requirements of the modern labor market. was developed taking into account the results achieved by foreign countries in the field of education.

This program consisted of 6 components: 1) qualification requirements of general secondary education; 2) concepts of general education subjects; 3) curriculum of general secondary education; 4) educational programs of general education subjects; 5) methodology of teaching general education subjects; 6) evaluation system. High-potential national and international experts, including foreign consultants provided by UNICEF, USAID and other international organizations, in order to ensure the effectiveness of the development, examination and pilot testing of the national curriculum and the step-by-step implementation organized systematic work with The current national education standards, curricula and educational literature were studied by comparing them with the educational and normative resources of developed foreign countries. , in addition to the experiences of countries such as the Republic of Korea, the USA, Hong Kong and Japan, the requirements and methodology of generally recognized international evaluation programs were taken into account. Currently, the Republican Education Center under the Ministry of Public Education of the Republic of Uzbekistan and international experts have developed a project of the National Curriculum, and in the 2020-2021 academic year, regional public education pedagogues will be retrained and their qualifications improved. centers and relevant higher education institutions, all components of the national curriculum were improved, and based on it, a new generation of textbooks for the 1st and 2nd grades was created in a complete set starting from the first quarter of 2021. It is expected that the national curriculum will be gradually tested starting from the 2021-2022 academic year, and will be fully implemented by the 2026-2027 academic year. On the basis of this work, it is assumed that students should be interested in science, and that education should be carried out in accordance with the requirements of the time and world education standards. Based on world experience. STEAM is in the leading position among the works on interest in science and training of mature personnel. Therefore, if we look at the world, STEAM education is becoming more and more popular. What is he capable of? the question arises, He directly connects the development of young students with the outside world. It is known that natural sciences, technology directly related to the world around us, are constantly used in our daily lives, while engineering is reflected in houses, roads, bridges and machinery, a profession, our daily studies. it is more or less connected with the science of mathematics [1-3].

The approach based on STEAM education allows young students to systematically study the world, to logically observe the processes taking place around them, to understand their interrelation, to discover new, unusual and interesting things for themselves. By waiting for something new, the student develops curiosity in young people, identifies an interesting problem for him, develops an algorithm for finding a solution, critically evaluates the results, and leads to the formation of engineering aspects of thinking.

Advantages of STEAM education:

1. Education should be integrated not by subjects, but by subjects.

STEAM education combines interdisciplinary communication and the design method, which is based on the integration of natural sciences with technology, engineering creativity and mathematics. In this, preparation for professions related to engineering is carried out [3-5].

2. *Application of scientific and technical knowledge in real life.* In STEAM education, the use of scientific and technical knowledge in real life is shown to children with the help of practical exercises. In each lesson, students develop, build, and develop models of modern industry. They study a specific project, as a result, they create a prototype of a real product.

3. *Development of critical thinking skills and problem solving.* The STEAM program develops the critical thinking and problem-solving skills that children need to overcome the challenges they face in their daily lives. For example, children assemble a model of a fast moving car and then test it.

4. *Increased feeling of self-confidence.* Children get closer to their goal each time they build a bridge, start a car and operate a model. After each test, the model is improved. In the end, he overcomes all problems with his own strength and achieves the goal.

5. *Active communication and teamwork.* The STEAM program is distinguished by active communication and teamwork. During the dialogue, a free environment is created for expressing one's opinion and conducting debates. They learn to speak and make presentations. Children always communicate with the teacher and classmates. If children actively participate in the process, they will remember the training better.

6. *To develop their interest in technical sciences.* The mission of STEAM education in primary education is to develop students' interest in natural and technical sciences.

7. *Creative and innovative approach to projects.* STEAM education consists of six stages: question (task), discussion, design, construction, testing and development. These steps are the basis of a systematic design approach. The coexistence or joint use of various opportunities is considered the basis of creativity and innovation. Thus, the joint study of science and technology leads to the creation of many new innovative projects.

8. *A bridge between education and career.* According to various evaluations, 9 of the 10 most in-demand specialists require STEAM knowledge. Such professions include chemical engineers, computer systems analysts, robotics technicians.

9. *Preparing young students for a technologically innovative life.* STEAM education prepares young people to live in a technologically advanced world. Over the next 60 years, technology developed rapidly: from the discovery of the Internet (1960), GPS technology (1978) to DNA scanning, and of course the iPod (2001). Technologies will continue to evolve, and STEAM skills will be at the core of that evolution.

10. *As an addition to STEAM school programs.* STEAM programs increase the interest of students aged 7-14 in independent activities. For example: in physics classes, when studying the modeling of a device or its operation algorithm, the algorithmic ship-sequence software model is written on the board and explained, in STEAM circles, they build and launch rockets, airplanes, parachutes, and strengthen their knowledge. Students do not always quickly understand terms that they have not seen or heard. In STEAM classes, they can easily understand these terms when they conduct interesting experiments.

The above analyzes show that it is impossible to imagine our world without technology. Technological development will continue beyond this, and STEM skills are at the heart of this development. STEAM inspires students. Students explore as inventors and scientists, explore the possibilities of technology, design as engineers, create as artists, think as mathematicians, and of course, have fun playing. STEM - develops the student's intellectual abilities with the opportunity to engage in scientific and technological creativity. It is based on a curriculum aimed at developing

students' interests in concrete, natural sciences. It helps to use technology in harmony with science for productive and useful needs.

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