

ADVANTAGES OF USING STEAM TECHNOLOGY IN PRESCHOOL EDUCATIONAL ORGANIZATION

Dilnoza Gafurova Salokhiddinovna

Assistant of Preschool Education Faculty of the Pedagogy and Psychology of Education department of Uzbek-Finnish Pedagogical Institute of Samarkand State University
dilnozagaffurova@gmail.com

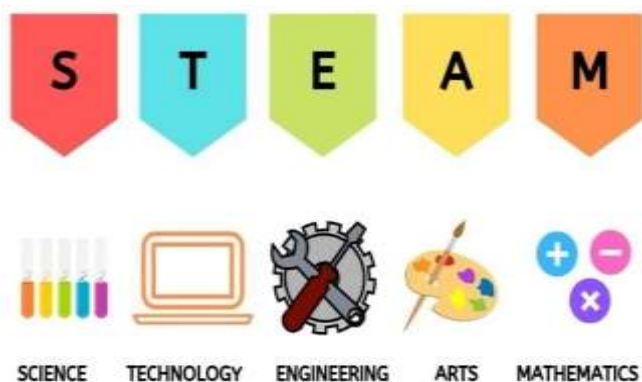
Abstract: This article explores the advantages of using STEAM technology into preschool pedagogy in terms of preschool children's mental development, including their ability to think logically.

Keywords: Child, mental development, formation of logical thinking, independence in the educational process, integrated education, STEAM technology, preschool education, developmental areas

all aspects, forming an independent activity in the educational process, and achieving educational goals through the development of the child's personality.

According to the Presidential Decree of the Republic of Uzbekistan PD-6108 on November 6, 2020 "On measures to develop education and science in the new period of development of Uzbekistan" transition to the educational process, introduction of highly effective international practices into the education system, knowledge of intensive language, ICT, and new teaching methods, taking into account the need for modern staff, mastering the fundamentals of STEAM pedagogy, knowledge of new professional competencies, and combining interdependent disciplines issues such as database formation.

WHAT IS A STEAM EDUCATION SYSTEM?



STEAM:

S — Science

T — Technology ,

E — Engineering,

A — Art ,

M — Mathematics .

STEAM stands for Science, Technology, Engineering, Art, and Mathematics, and is an abbreviation of the capital letters of five words originating from the English

language. It stands for a combination of teaching natural sciences, technology, engineering, art, and mathematics. In today's schooling, these are the most popular subjects. As a result, one of the major trends nowadays is the STEAM system. STEAM is built on the integration of all five disciplines into a unified educational system, as well as the direction of instruction and the use of a practical approach. Unlike education, STEAM technology allows knowledge to be imparted in a balanced, not

separate, manner. The learner develops non-traditional thinking, problem-solving, and creative skills that will come in handy in his future endeavors.

STEAM stands for "science, technology, engineering, arts, and mathematics." What is the definition of integration? The word "integration" comes from the Latin word "integratio," which means "relation." Integrity, structure, connectedness, and improvement are all terms used to describe a whole. The term "integration" is very new, having first used in the 1920s. It was founded in the twentieth century by German scientists R. Schmed, H. Kelsen, and D. Shindler. The process of producing an integral whole while keeping one's identity is known as integration. Integration can occur in various aspects of life, science, and technology.

STEAM (Science, Technology, Engineering, Arts, and Mathematics) learning technology is a new way of teaching pupils that differs from previous approaches. It is aimed to teach kids Science, Technology, Engineering, Fine Arts (Art), and Mathematics all at the same time (Math). STEAM, not science, is an integrated subject-based learning approach.

The impact of the STEAM approach on learning effectiveness: The primary premise of the STEAM approach is that practice is just as important as theoretical knowledge, which means that we must study not only with our heads but also with our hands. The fundamental difference between the STEAM technique and other approaches is that youngsters successfully study a variety of topics using both their brains and their hands. What they learn is "understood" by them. Children absorb knowledge and quickly learn how to apply it in a STEAM learning setting. As kids grow older and experience life concerns, such as environmental pollution or global climate change, they realize that such complicated issues can only be solved by combining expertise from other professions and cooperating. It is not enough to rely on knowledge on only one topic. The STEAM approach is changing the way we look at education.

By focusing on practical skills, students develop their will, creativity, flexibility, and learn to collaborate with others. These skills and knowledge are a core educational task, which determines what the entire education system strives for.

The Steam approach to education is a logical consequence of combining theory and practice. STEAM technology was originally developed in the United States. Some schools took into account the careers and careers of their graduates and decided to combine subjects such as science, technology, engineering and mathematics, and the STEAM system was formed in this way(natural sciences, technics, engineering and mathematics). Later, Art was added to the field, and now STEAM is fully formed. Teachers believe that knowledge of these topics, more precisely, knowledge of these subjects will help students to become highly qualified professionals in the future. After all, children strive to acquire good knowledge and immediately put it into practice. The most popular example of the STEAM approach was developed at the Massachusetts Institute of Technology (MIT). The motto of this famous university was "Mind and hand". The Massachusetts Institute of Technology has developed STEAM courses to give children the opportunity to learn and get acquainted with the concept of STEAM in advance, and has even set up STEAM training centers at some educational institutions.

Through the STEAM education system, a child develops creativity, perseverance and curiosity. One of the most important traits today is problem-solving skills.

The purpose of using STEAM technology in preschool education is to develop children's thinking, develop children's creativity, knowledge and desire for innovation, and teach them to effectively use a combination of science, technology, engineering, mathematics and art. And teachers help you learn modern and fun ways to teach “STEAM thinking” begins in childhood. Even when a child does not know how to walk, he can understand the interdependence, sequence, and probability of processes. These qualities should be encouraged in every way. A quality book can be a powerful springboard for bringing a child into the STEAM system. An important point here is that a book based on STEAM principles should not be confused with encyclopedia books.

The books in the S-Science series help to introduce children to the world of animals, marine animals, plants, insects and nature. Such books can give the child the necessary knowledge without him noticing. The Mysterious Sunset is a book that takes a new approach to the S-science section of the STEAM system. The child naturally learns about the setting of the sun during the seasons and witnesses interesting events.

STEAM is an educational technology based on a design method that is based on knowledge and artistic research. STEAM - education directly connects a child's development with the outside world. STEAM-approach allows children to explore the world in a systematic way, to observe the processes taking place around them logically, to understand their interrelationships, to discover new, unusual and interesting things for themselves.

Advantages of STEAM education:

- Integrate teaching into 'topics' rather than academic subjects. STEAM is a combination of interdisciplinary communication and design methods that integrate the natural sciences into technology, engineering, and mathematics. This includes training for engineering professions.
- Apply scientific and technical knowledge in real life. STEAM - through practical training, children are shown the application of scientific and technical knowledge in real life. In each lesson, students develop, build, and develop modern industrial models.
- Develop critical thinking skills and problem solving. The STEAM program develops 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 car and then test it. After the first test, if the expected result is not achieved, they think about the reasons and find out. Maybe the size of the wheels or the aerodynamics didn't match. After each test, they fix the problem.
- Increased self-confidence. The children are getting closer and closer to their goal of building a bridge, launching a car and an airplane. After each test, the model is improved. In the end, they overcome all difficulties on their own and achieve their goals. It means inspiration, victory and joy for children. With each victory, they become more confident in their abilities.
- Active communication and teamwork. The STEAM program is characterized by active communication and teamwork. During the dialogue, a free environment is created for them to express their opinions and debate. They learn to talk and make presentations. Children are always in touch with their teachers and peers. When children are actively involved in the process, they will remember the lesson better.

- Develop an interest in the technical sciences. The purpose of STEAM in preschool education is to develop children's interest in the natural and technical sciences. Doing what you love with love is the basis for developing their interests. STEAM is a very dynamic and fun activity, so children do not get bored during the training and do not notice how time passes.
- Creative and innovative approach to projects. STEAM training consists of 6 stages: question (task), discussion, design, construction, testing and development. These steps are the basis of a systematic design approach.
- Preparing children for a technologically innovative life. STEAM education prepares children to live in a technologically advanced world. Over the next 60 years, technology has evolved rapidly.
- Used as an adjunct to STEAM curricula. The STEAM approach is not only a method of learning, but also a way of thinking. In the STEAM learning environment, children acquire knowledge and immediately learn to use that knowledge. So when they grow up and face any real-life problem in the real world, whether it's pollution or global climate change, they understand that such complex issues can be solved by relying on knowledge from the sciences and working together. It is not enough to rely on knowledge from one subject alone.

The STEAM approach is changing the way we approach learning and education. Students develop willpower, creativity, flexibility, and learn to collaborate with others by focusing on practical skills. These skills and knowledge form the core of education, which is the main goal of the education system. STEAM has proven to be one of the best ways to teach science, but it needs to be modified to include music (STEAM).

In conclusion, it should be noted that the steam approach to learning, unlike traditional teaching methods, allows children to experiment, create models, engage in independent practical activities, be creative, express their ideas, encourage them to bring it to life and create a final product. A preschool child fantasizes, thinks about unusual things, at this age wants to learn about the world, and tries to create an abstract situation in his mind. The STEAM approach to preschool education shapes a child's ability to think abstractly, and this phenomenon is a type of intellectual activity. This approach makes it easy for children to solve puzzles, effectively combine theoretical and practical skills, and facilitates the next stage of learning.

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