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THE IMPORTANCE OF STEAM TECHNOLOGY AND ITS USE IN TEACHING NATURAL SCIENCES

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Annotation
The possibilities of STEAM technology in primary education help to increase students' knowledge about existence and environment. Today, the development of continuous education and the introduction of international technologies into public education are being improved in our country. This article is devoted to the importance of STEAM technology in the teaching of primary education subjects.

Keywords: STEAM technology, Heuristic learning method, creative qualities, Science, Technology, Engineering, Art, Mathematics.

Introduction

Our country is rapidly developing on the path of innovative development, and at the same time, it is necessary to comprehensively support the creative ideas and creativity of young people, who are the successors of our future, to develop their creative qualities, to update their knowledge, to improve their skills and qualifications, and to use advanced experiences. , an international benchmark. and providing guidance based on requirements, studying economic experiences, comprehensively comparing the existing system, starting work related to international and security, agencies, scientific research tools in the relevant direction[1].

Teaching on the basis of STEAM education in the field of natural and economic sciences, conducting educational activities in classes and extracurricular activities to show that the knowledge, skills and competencies acquired by students are related to everyday life, helping to educate and develop creativity aimed at creating experiences, increasing [2].

Analysis and site. Education, in a word, is educating and making the young generation literate, which provides a certain perspective for the country[12]. The use of various scientific research methods in the educational process forms the process of learning, students' independent thinking, students' ability to master the subject, master it, freely export it in practice [3]. STEAM education is a new method of teaching technology school students, a method different from traditional teaching methods.

It is designed to teach students simultaneously in five subjects: Science, Technology, Engineering, Art, and Math. In a STEAM learning environment, students acquire knowledge and learn to use it immediately[13].

Therefore, when they grow up and face life's problems, whether it is environmental pollution or global climate change, they understand that such complex issues can only be solved by relying on knowledge from different fields and working together. Here, it is not enough to rely on knowledge of only one subject.

By focusing on practical skills, students develop their will, creativity, flexibility and learn to cooperate with others. These skills and knowledge constitute the main educational task, that is, what this entire educational system strives for. This is the logical result of combining theory and practice. STEAM was developed in America. Some schools took into account the careers of graduates and decided to integrate subjects such as science, technology, engineering and mathematics, and this is how the STEAM system was formed. (Science, Technology, Engineering and Mathematics). Some aspects of the problem of directing elementary school students to innovative activities based on a creative approach by Russian researchers-scientists A. Boyko, A. Aleksiuk, theoretical study of the personal approach of readiness for pedagogical activity, the talented young generation of students integrative qualities of upbringing V. Bondar, S. Goncharenko, V.I. Yevdokimov, L. Kadchenko, V. Kovalev, A. Lipenko, O.R. Penkova, B.V. Shcherbina, Slastenin and a number of other scientists' works are covered[14].

However, in the mentioned works, only certain issues of preparing elementary school students for innovative professional activities are considered[4].

Based on the relevance of the problem under consideration, it can be said that the theoretical and methodological aspects of innovative activities of elementary school students based on creative approaches are not sufficiently developed, as well as the need to improve the modern education system.

Taking into account the complexity and variety of the problem under study, this idea can be implemented only within the framework of creative ability through the following theoretical recommendations:

1. The student's readiness for innovative activity is his integrative quality, which is manifested in the dialectical unity of all structural components, features, connections and relations.

2. It is logical to consider the system of formation of primary school students' readiness for innovative activities as a sub-system of general pedagogical training aimed at forming students as subjects of educational innovations in pedagogical educational institutions[5].

3. The process of preparing elementary school students for innovative activities is effective if it is implemented in the conditions of a technological approach.

4. The conceptual foundations of the technology of developing the readiness of pedagogues for innovative activities based on creative approaches are the main rules of the innovative and person-oriented approach to the professional and pedagogical training of students.

5. The technology of forming the readiness of primary school students for innovative professional activity should be implemented in higher educational institutions of pedagogy in accordance with the principles of integrity of professional activity, individual approach and step-by-step development in the conditions of their general pedagogical preparation[15]. This is achieved by individualizing the innovative training of elementary school students, separating the cycle of interrelated stages in it, each of them having a specific purpose and appropriate content, methods and forms of work[6]. The process of preparing primary school students for innovative activities should act as an optimal integrated system for the educational process through the development and implementation of modern technologies.

The subjective nature of cooperation between primary school pupils and students, individualization of the teaching process, creation of conditions for the formation of critical, creative thinking and worldview, creative professional thinking of primary school pupils and the use of interactive pedagogical technologies can be achieved by.

In order to meet the new socio-cultural order, the modern student must be ready for innovative activities. At the same time, according to experts, the organization of training subjects of innovative educational activities should have its own characteristics depending on the level of fundamental changes[7].

It is effective if the main rules of preparing elementary school students for the introduction of educational innovations are based on a targeted approach and aimed at mastering the methods of developing and implementing an innovative development program of an educational institution[16].

Preparing elementary school students for choosing educational innovations and implementing them in practice allows solving identified problems, ensures the formation of their critical thinking. The process of introducing educational innovations for primary school students should be planned as follows:

- development of the concept of innovative development of education in universities;
- development of a strategic plan for the introduction of modern teaching technologies in the practice of a higher educational institution;
- development of measures for the implementation of the training process[8].

The main difference between the student's innovative activity and the traditional activity is to be ready for any, even unexpected, situation, to be able to adapt, and to create appropriate conditions for the comprehensive development of the potential of the student[20].

The novelty of the student's educational activity depends on how much he understands the meaning of using certain innovations in practice, he should search for them before using them, and make the right choice[10].

The following indicators of innovative activity should be noted in the literature analyzed during the research:

– updating the content of education, teaching methods and forms, self-control, analysis and evaluation of their activities, cooperative teaching activities, etc. in a higher education institution;

- comparing the compliance of the final results with the planned ones when evaluating the effectiveness of the educational process. Practical work shows the greatest difficulty in evaluating the criteria and indicators of innovative activity and forming an incentive for the student's innovative potential. Criteria are the means of making judgments, the basis of which is the characteristic of evaluation[17].

The criteria for evaluating the student's innovative activity serve as a specific condition for the effectiveness of the educational process. The use of innovations in the educational process is considered as a method of solving problems in the process of non-traditional situations during the functioning and development of the educational process[18]. Evaluation criteria help to transfer innovative changes from the organizational level to the content level, i.e. to give innovative technologies new qualities, to change their essence[.

Later, Art was added here, and now STEAM was finally formed. Students believe that knowledge of these subjects, or more precisely, these subjects, will help students become highly qualified specialists in the future. After all, students seek to acquire good knowledge and apply it immediately[9].

STEAM is an integrated system of learning by subject rather than by subject. STEAM education means the application of scientific and technical knowledge in real life with the help of practical training. Do not forget that these directions are becoming the most popular in the modern world. Therefore, today the STEAM system is developing as one of the main trends[11].

Summary. STEAM education is based on the application of a practical approach and the integration of all five areas into a single educational system. Its main idea is that practice is as important as theoretical knowledge[19]. That is, during learning, we need to work not only with our brain, but also with our hands. Learning only in the classroom is not keeping pace with the rapidly changing world. A key difference in the STEAM approach is that students use both their brains and hands to successfully learn a variety of subjects. They "read" the knowledge they received.

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