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Research Article

DIRECTIONS FOR IMPROVING THE QUALITY OF EDUCATION IN PHYSICS CLASS

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ABSTRACT

The article examines the requirements for improving the quality of learning in physics classes and various aspects of the process of creative teaching.

KEYWORDS

Quality of education, competence, competence approach, creative, education, educational process, students.

INTRODUCTION

Based on the requirements of the time, the President of the Republic of Uzbekistan Sh.M. Mirziyoev's Decision "On measures to increase the quality of education in the field of physics and develop scientific research" was adopted. In the resolution, a number of issues that have not been resolved, the need to implement measures aimed at increasing the quality of education in the field of physics and the effectiveness of scientific research is indicated [1].

In today's rapidly developing and digitized world, when artificial intelligence is actively entering all aspects of our life, the problem of how to educate the young generation so that it does not become unemployed in the future remains a pressing issue. What kind of subjects are the orientation of

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the students of general education schools, which will help them to find their place in the modernized world?

According to UN projections, by the year 2050, 75% of occupations of that time are expected to be related to STEM sciences. From now on, as a result of starting the education process based on this system, it is recognized that it is necessary to train personnel who can find solutions to future problems and make new discoveries.

To find a solution to the problem, it would be more effective to introduce STEM (Science, Technology, Engineering, Mathematics), which is one of the advanced technologies in the practice of world education - a system that combines science, technology, engineering and mathematics. STEM subjects would be better taught on the basis of modern pedagogical technologies, prepare students for the digital world, and provide an opportunity to understand the newly developed modern sciences and technologies.

STEM subjects include science, technology, engineering, and mathematics and require that these subjects be taught in an interdependent, holistic manner.

There is a need to start STEM education at school. Based on the knowledge gained based on this system of education, the student learns to find a clear solution to the events and problems occurring in the world. A student who is educated and well versed in the fields of Science helps him to better understand the phenomena that occur in the environment around him. The science of technology increases the adaptability of the digital world, which is the future of all mankind. With Engineering (Engineering) subjects, the student will have the ability to solve problems related to the field, and will be able to apply the learned knowledge to create new projects. Mathematical and physical sciences are one of the important sciences for analyzing data, correcting mistakes, and finding their correct solutions. The process of STEM education integrates these four areas into one system and prepares qualified personnel who can create innovations and find sustainable solutions to existing problems for the labor market [2].

The STEM education system breaks the stereotypes of the outdated traditional standard ineffective theoretical education, because STEM consists of practical activities and projects based on the educational standard, in which students learn in real work environment situations, develop different ideas and put them into practice. In the conditions of such diligence, students are forced to work independently without any pressure from external forces, because in front of him is the goal of realizing the highest idea that his inner feeling prompts him to achieve - in such a case, no force can hinder his efforts on the way to achieving his goal. cannot be.

In STEM lessons, as a result of the pedagogue's organization of educational projects or educational-research works, special emphasis is placed on mastering the basics of science and effective use of modern educational technologies in training sessions, directing students to solve the problem based on the existing problem in

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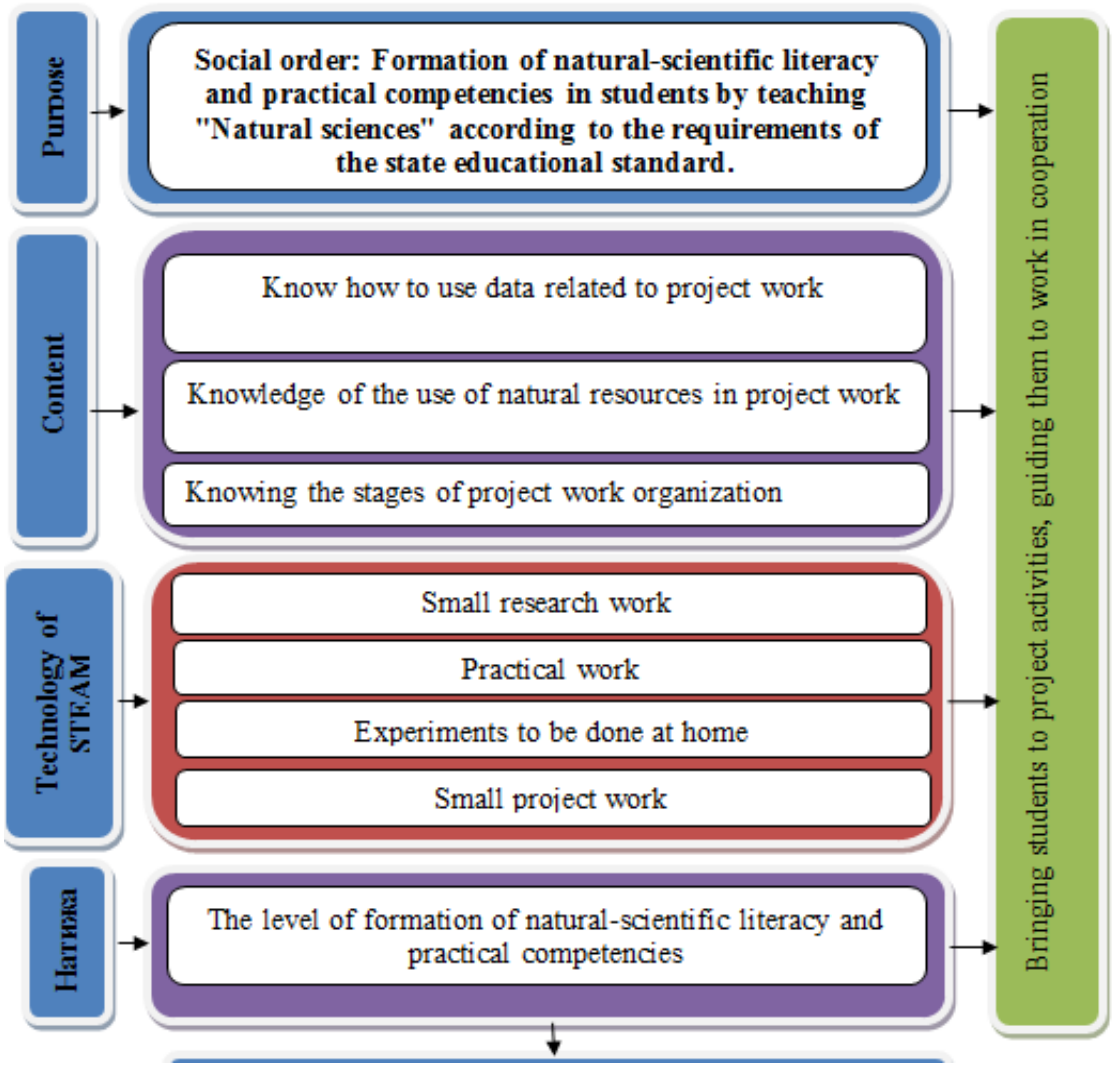
science, and the elements necessary for processing the received information. its introduction will create an opportunity for students to acquire the necessary knowledge related to science and to develop skills and competences. An educational-practical model of achieving natural-scientific knowledge skill levels is proposed (Fig. 1), this model consists of goal, content, technology, result, evaluation parts. The model reflects the issues of directing students to project activities, developing their teamwork skills, developing creative thinking in students through practical competencies, and increasing their mastery of natural sciences.



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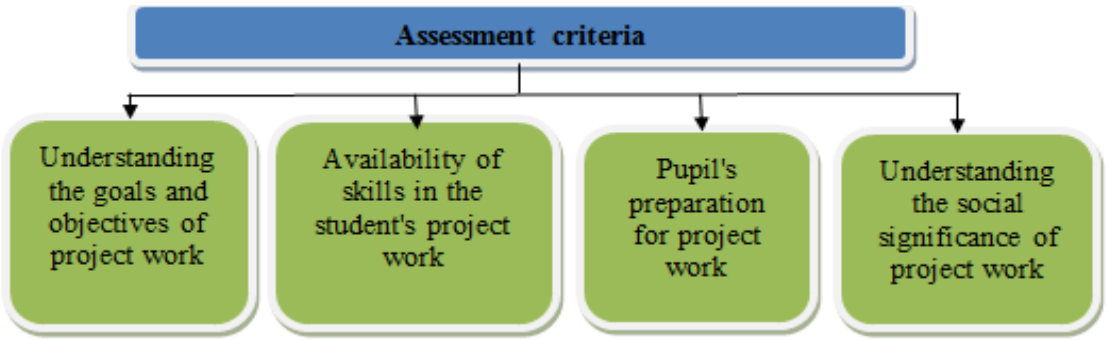

Figure 1. The model of formation of natural-scientific literacy and practical competences in pupils [3].

The purpose of the model is to form natural-scientific skills and creative thinking competence in the process of teaching "Natural Sciences" in accordance with the requirements of the State Education Standard.

The substantive part of the model includes such functions as mastering the full use of design information by the managed object (student), being able to use available natural resources in design work, learning the organizational stages of project work, and understanding the importance of project work in social life. This part is distinguished by the direct orientation of the student to the project activity.

The technology part, which forms the core of the model, serves to prepare the student for step-by-step project work. In order to develop the student's research skills, he is first recommended to do a small research work, practical work, experimental work done at home, and then he is assigned to do a small project work. The technology part of the model, which introduces students to design activities, leads to the formation of creative thinking competencies in them.

The model envisages assessment of creative thinking competences based on the student's involvement in project work and the results achieved during its implementation. As evaluation criteria, the student's attitude to the project activity (indicator - the ability to understand the goals and tasks of the project activity and the attitude to participate in it), the presence of competent skills of the student in performing the project work (indicator - collecting information for the project work and finding its sources), the student's readiness to perform the project work (indicator – able to independently plan project work and follow the sequence of its execution, can effectively use available resources in project work). Evaluation criteria: low (does not know), medium (knows partially), good (knows moderately), and excellent (knows well).

In the process of education, teaching students about science as research, not only presenting

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scientific evidence and results, but for them to express their opinion on problems related to society and the environment in everyday life, to collect evidence based on their observations and actively participate in their use; they are required to explain based on their scientific knowledge [4].

STEM education requires the availability of 3D printing laboratories. Such laboratories not only meet the needs of educational institutions, but also provide an opportunity to provide paid services to production lines in order to find additional funds outside the budget of the educational institution. The development of 3D modeling technology leads to an increase in students' interest in exact sciences.

Lessons conducted with the help of 3D modeling prototyping laboratories in the teaching of physics are compatible with the STEM educational system and allow students to effectively master several specific subjects in an emotional state - mathematics, physics, engineering, mechanics, electronics, programming.

During the learning of STEM subjects, the following skills are formed in the student:

- ability to solve existing problems;
- competence approach;
- creativity;
- critical thinking;
- ability to work in a team;
- independent thinking;
- communicativeness;
- digital literacy.

The importance of STEM system sciences is that most of the existing occupations related to us today will be performed by robots that are automatically controlled in the near future or may completely disappear from our daily lives. The STEM education system prepares personnel for this future.

STEM careers require a thorough mastery of each discipline. For example, in order to prepare a project for a 16-story building, an architect must have mastered the science of making mechanical, mathematical, and economic calculations of material costs, earthquake resistance. Then it requires mastering engineering and technology to create a model of the building.

The STEM education system requires a little more difficulty and hard work than other fields. Because of this, if the student cannot master the subjects related to the system at once, it will be difficult for him to achieve the expected result. For example, if a student who wants to build a robot does not have the necessary skills, how can he build a robot that can perform the tasks he envisions? However, despite the difficulties, the student's interest in learning STEM subjects increases. Despite the rapid development of technologies, it is difficult for someone to solve complex problems such as creating new software, discovering environmentally friendly fuel products for spaceships, developing new technologies that do not harm the environment, finding efficient renewable energy sources, and finding cures for diseases that have not yet been cured. necessary. A good mastery of the STEM science system by the student prepares personnel

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who can find answers to such difficult problems. Employers offer high salaries for such modern personnel.

In short, to find a solution to modern problems, theoretical knowledge is lacking - creativity and innovation are required, it is necessary to know how to create new methods, generate ideas and search for ways to apply them in practice. By using these methods in the teaching process, students learn to find multiple solutions to the problem in the subject. The existence of such a process develops students' skills of comprehensive analysis of this situation and, in turn, creative thinking.

REFERENCES

1. Resolution of the President of the Republic of Uzbekistan Sh.M. Mirziyoev "On measures to improve the quality of education and develop scientific research in the field of physics". PQ-5032. 19.03. 2021.
2. Zakieva A., Lushpaeva I., Proektirovanie uroka v sovremennykh usloviyax .[Electronic resource]: URL:http://magarif-uku.ru/proektirovanie-uroka-v-sovremennykh-u/
3. Sangirova Z.B. Methodology of organizing educational projects based on the STEAM approach in general education schools. 13.00.02-Theory and methodology of education (physics). Abstract of Doctor of Philosophy (PhD) Dissertation in Pedagogical Sciences.
4. Standards of the second generation, Enlightenment. [Electronic resource]: URL: http://prosv.ru/attachment.aspx?id=23395