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INNOVATIVE EDUCATIONAL TECHNOLOGIES IN THE DEVELOPMENT OF STUDENTS' CONSTRUCTIVE COMPETENCES

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ABOUT ARTICLE

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Abstract: This article highlights the role of using modern pedagogical and innovative technologies in teaching engineering graphics. The main purpose of using modern pedagogical technologies is to achieve the efficiency of students based on mastering the material and improving their skills.

INTRODUCTION

As the President of the Republic of Uzbekistan Sh.M. Mirziyoyev said, "Of course, only you, our dear young people, who have mastered modern knowledge and skills, think independently, and always live with a sense of belonging to the fate of the country, will boldly go out into the field and become the leaders of life today. "You are capable of solving the tasks that are set before us." Bringing up young people who justify such trust expressed in the young generation is the most important task for today's intellectuals.

Currently, in higher and educational institutions, several remarkable works are being carried out, aimed at the methodology of teaching special subjects, the use of new pedagogical and information technologies in the teaching process, and the problems of educational methodological support. In order to apply modern pedagogical technologies to the educational process, seminars and scientific-practical conferences are held with the participation of advanced specialists and qualified pedagogues of foreign countries.

The practical importance of the science of drawing, which is taught in educational types, is also very great in preparing young people who can "play" with new products and machines, which are the results of technical development, can make drawings of modern construction objects and can build them.

Engineering computer graphics is a new discipline, graphics
is a promising part of the preparatory block. Engineering computer
graphic design includes elements of geometry and drawing
is an academic subject. It is in the formative stage. The purpose of science is

making and reading drawings on the computer of future specialists
ability formation. Learning computer graphics
is becoming an important element in the engineer's professional activity.
In the process of mastering the science of engineering computer graphics, the student performs drawing and drawing on the computer based on the drawings in geometry. Here are the ways to make a drawing in student drawing
and draws the rules using the commands of the program, not with the help of a pen. In the process of teaching the science of engineering computer graphics, it can be used in the following types of educational activities in the development of basic competencies of students: in the study and presentation of new theoretical materials; organizing theoretical and practical training; in strengthening, controlling and checking the learned educational material; in independent work of students; they will improve in designing new drawings given in practical training on the computer. Drawings are not only necessary in technology, they are also important for many professions of a person. Depending on the drawings, it is used in residential buildings, dams, mines, power stations, railways and various highways, in furniture making, and greening of cities and villages. Drawings are also necessary for mastering complex medical techniques, learning physics, mathematics, geometry and other subjects in schools.
When performing exercises in the science of engineering computer graphics, spatial perception is formed, which is considered the most basic quality of human thinking. Students' graphic literacy is developed by doing independent exercises. Therefore, it is necessary to pay special attention to the quality of the graphic literacy of young students and the optimal development of graphic activity in the "Man and Technology" system. A special view of thinking directed to the analysis of the characteristics and important properties of graphic material and logically connected to them. is focused on the formation of spatial thinking qualities.
A.K. Vlasov (1869-1921), one of the scientists of the 20th century, justified the possibility of teaching drawing geometry based on the use of projective geometry sources. His successor in this direction was the famous scientist N.A. Glagolev (1898-1945). Drawing geometry has been taught in Uzbekistan since the 1930s. In 953, one of our local scientists, Rahim Horunov, was the first to defend his candidate's thesis. In addition, Associate Professor Yusufjon Kyrgyzbayev wrote the first literature in Uzbek on the subjects of drawing geometry and drawing and showed the Uzbek names of science terms to scientists.
The purpose of drawing science is to draw models, details and objects in a plane view (orthogonal projections) and to teach pupils and students the rules of their reading. A drawing is a design document that is renewable. That is, through the information in the completed drawing, it is ensured to have a complete idea of what the original of the item is, or it will be possible to manufacture it. The rules of geometric creation in geometric drawing, the laws of execution of views and axonometric projections of models and details in projection drawing, the rules of drafting machine details and working drawings of objects in mechanical engineering drawing, drawing up plans, facades, cuts, general plans and maps of buildings and structures in construction drawing and their development. winter rules, the rules of making numerical projections of geometric and natural surfaces in topographical drawing and drawing construction works on the surface of the earth.
We present materials about the development of drawing geometry and drawing sciences in Europe. As a result of the development of shipbuilding in Russia, more accurate and to-scale drawings appeared. It began to use three projections, which described the length, width and height.

The main task of the science of engineering computer graphics is to teach students the knowledge and skills necessary to freely perform design and construction and creation of models of technological processes using a ready-made command package. State standards cannot be violated. They are equally mandatory for all design organizations and educational institutions. In Uzbekistan, the state standard was reformed on 17.11.2003 and it is called State Standard of Uzbekistan UzDst 2.001:2003. In our country, all drawings are drawn based on the basic rules specified in the unified system of construction documents of the Republic of Uzbekistan (Uz USCD).

Professional competence is the acquisition of knowledge, skills and abilities necessary for professional activity by a specialist and their application at a high level. Competence requires constant enrichment of professional knowledge, learning new information, finding new information, processing it and being able to apply it in one's work. Professional competence is manifested in the following cases: in complex processes, performing complex tasks, activity, efficient use of information technologies, through didactic materials, it is expected to be ready in an unexpected situation.

Preparation for engineering computer graphics through the following methods in the development of students' design competencies is as follows:

1). Learning methods are accepted by listening, for example: oral methods, lecture, conversation.

2). Visual transmission and viewing of educational information, for example: visual method, layout, model, multimedia, details, posters.

3). Educational information through practical labor actions, for example: through exercises and drawing geometry problems, solving test tasks, through complex drawings in drawing.

Teachers of engineering computer graphics should set a goal in the process of covering each new topic. A great skill is required for the teacher to inculcate his knowledge in the minds of the students during the lesson, in simple language, with simple, smooth, real-life examples. After the end of the lesson, the teacher will know that he has achieved his goal based on the knowledge and skills acquired during the evaluation process. For this, the teacher needs to know the psychology of students well. The main requirements for teaching the science of engineering computer graphics include the following.

1. Development of students' awareness;
2. Taking into account the personal characteristics of students;
3. To increase students' activity and spatial imagination;
4. To control the thoroughness of acquiring knowledge, skills and qualifications;
5. Using didactic deduction, increasing the systematicity and consistency of teaching;
6. Using graphic samples, organizing graphic education to be comprehensible;
7. Using the educational character of teaching;
8. Scientific;
9. Visuality;
10. In teaching, it is required to be able to explain the connection between theory and practice.

Experiments show that in the information age, students can learn deeply only if they work independently and work tirelessly on themselves. The activity of a teacher teaching engineering graphics is based, on the one hand, on the knowledge, skills and abilities related to professional and pedagogical activity, and on the other hand, on the psychological and pedagogical knowledge that performs the function of organizing and managing graphic activity. Students are formed in the process of education, they develop the ability to work independently, develop constructive competences, and develop an interest in creative work.

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