

METHODOLOGY OF STUDENT CAPACITY DEVELOPMENT IN TEACHING ENGINEERING GRAPHICS

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Abstract

Modern to increase the level of knowledge of students The use of technology in the classroom can lead to high teaching efficiency and full mastery of the topic. Through these technologies, we not only increase students' spatial perceptions of what they have learned, but also help students develop an interest in the subject.

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The development of science and technology requires responsible, modern and urgent requirements for the young generation in all spheres of human activity to be able to understand receive and process information and master it with the help of graphics. 'is moving. Therefore, one of the most important issues is to study the effectiveness of the formation of basic graphic knowledge and skills in students.

The formation of graphic knowledge, skills and abilities in students and the scientific substantiation of the issue related to the prospects of graphic training of students in higher education requires taking into account the important features of objective reality.

One of the characteristic features of human labor in modern production conditions is its mediation in the management of technically objective and technological processes. In a number of industries, human communication is not with real objects, but with schematic controls that replace memory and processes.

If at certain stages in the development of the productive forces of society human graphic literacy is assessed in terms of working with figurative graphic models of objects, now it is associated with a fundamental change in the way of solving spatial and other problems. the study of dealing with abstract symbolic models of objects is preferred.

In today's conditions of material production, there is a need to qualitatively change the system and the structure of the media. There are two ways in which a simplification system can be used to address this issue.

The first is to create a system in which the shape of the selected symbols reflects the properties and relationships of the object as much as possible. But in most cases, this is difficult to achieve.

The second is connected with the idea that control objects through letters, numbers and other symbols describe their real properties and relationships, which do not remind them of anything. This trend is reflected in the science of drawing, which is associated with the preparation of technological documents and is systematically improved on an international scale. The design documentation reflects many enlargements, simplifications and symbols, some of which are planned to be introduced in the near future.

In some specialized industries (electronic radio engineering, instrument making, etc.), a number of measures are being taken to normalize and simplify the drawings of periodic parts, devices, assemblies, etc.

In the field of technological documentation, the idea of replacing the images of periodic technological operations with conditioned reflexes is put forward so that the schemes and backgrounds grow.

The above objective trend in the development of the science of drawing, associated with the rapid growth of science and technology, should be reflected in the process of graphic training of students.

Thus, from the above objective facts, the following conclusions can be drawn.

First, education in Uzbekistan is entering a new stage of development. In this regard, it is necessary to establish increased requirements for graphic training at school. This is what we need today.

Secondly, the need for the development of figurative thinking and spatial imagination of people is constantly growing.

Improving the quality of the educational process is one of the most important tasks in the development of general and vocational education.

The need for research in this area is due, firstly, to the growing demand for modern pedagogical and scientific and methodological training of teachers, and secondly, to the didactic, pedagogical assessment of innovations in pedagogy in recent years.

It is known that the full implementation of labor and polytechnic education in secondary schools is necessary to improve the graphic literacy of students, therefore, in the conditions of scientific and technological development, abstracting a person according to the real characteristics of objects becomes in demand. Because the possibility of working with models with different levels of graphics is growing day by day.

Therefore, in recent years, in the development of "man and technology", the interest of psychologists in the thought process of educators and methodologists in the formation of methods for using graphic media in the educational process has increased.

The main essence of engineering in the polytechnic training of students is that the pictorial activity by its very nature is characterized by a combination of knowledge in the field of reading and making drawings and systematized knowledge of technology with the student's system.

The content of the engineering course is aimed at helping students master the technique, communicate with technical objects in production. Graphic images are combined with such systematized media, without which it is impossible to study and model the structure of machines, tools, structures, a large number of technical areas that attract people to science, production and life.

In recent years, the methodology of engineering graphics has been improved. Accordingly, the educational process should be based on theoretical guidelines that have been tested by many years of pedagogical practice.

The most important of them is the parallel study of the axonometric projection with the rectangular projection and the correct understanding of the integrity of the geometric projection and technical drawing.

The work that has been done so far to develop the thinking of students in the learning process needs further improvement. This means not only equipping students with a system of knowledge, but also the formation of their ways of mental activity related to the solution of various graphic tasks.

In engineering graphics and educational psychology, much attention is paid to choosing the best teaching methods. One of the objectives of the methodology is to focus on the integration of students' learning activities into the educational process.

From this point of view, the analysis of textbooks and didactic materials showed that graphic exercises affect the cognitive activity of students in different ways. All training exercises can be divided into three groups. They may be associated with reproductive or varying degrees of active thinking.

The first group includes drawing exercises with or without scaling. This exercise also contributes to the development of thinking.

The second group can include exercises that require visual and practical activities, such as reading drawings to develop students' thinking, compiling descriptive images, comparing drawings.

The third group may include exercises with two or more substitutions, the solution of which contributes to the dynamic development of spatial imagination.

Studies have shown that graphic and practical work affect mental activity in different ways, and the potential abilities of students are revealed in the process of performing diverse graphic tasks. Accordingly, it is necessary to compare the content of graphic and practical exercises included in the educational process, enrich them with such exercises as reading drawings with views, drawing from an image, drawing a missing line or filling in views.

These training exercises develop the spatial imagination of students and are important in consolidating their assimilation of the program materials of the engineering graphics course. However, important recent developments have focused on the development of students' dynamic spatial imagination. Accordingly, the visual activity of students should be based on tasks characteristic of the composition of creative activity necessary for modern production, such as the excitability of students' spatial imagination, the development of logical and figurative thinking.

The introduction of a wide range of substitutions in the process of graphic training of students, including the shape of objects, their spatial position, modification of their projection methods and image methods.

Learning activities are similar in nature to solving situations that require active thinking from students.

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