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Article

Cognitive Activity of Students in Drawing Lessons Activation and Drawing Training Process through Autocad Software

Rashidov Furqat Abdalim o'gli¹, Namazova Gulshan Ravshanovna²

¹ Assistant of the department of Descriptive art and engineering of Graphics, UzFinPI

² Assistant of the department of Descriptive art and engineering of Graphics, UzFinPI

* Correspondence: dersuzala1972@gmail.com

Abstract: This scientific article is about the role of modern computer graphics programs in the study of technical images. Computer graphics programs allow teachers to teach engineering subjects. Drawing and engineering science classes explore the idea of harmonizing computer graphics programs with theoretical and practical methods.

Keywords: research, engineering, drawing, computer, method, AutoCAD, system education, pedagogue

1. Introduction

Nowadays, in our rapidly developing age, there is no field in which modern information technologies have not penetrated. We cannot imagine engineering fields without computer graphics programs, so modern computer technologies do not bypass engineering fields. Therefore, we can say that the creation of the largest and smallest buildings and structures, starting with modern technical means, is initially carried out through computer graphics programs. In this process, three-dimensional computer modeling tools are in the attention of users, and this is certainly not accidental. Their use allows the high-quality execution of construction and design works and allows the user to quickly, high-quality, high-accuracy and print out drawings.

Today, the work carried out in the field of education in our country is growing day by day. Of course, this process requires teachers and pedagogues to combine the methods of organizing theoretical and practical lessons with modern computer technologies in the educational process. Drawing, drawing, geometry, and engineering, which are taught in general secondary schools, vocational schools, and family schools, are an even more important task. Based on the task, the teachers of drawing, drawing geometry and engineering graphics should have basic knowledge of at least five modern graphic programs and know how to design primitive elements of drawing on the computer using them, i.e. Photo Shop, Corel Draw, 3D MAX, AutoCAD and Flash.

This article proposes a method of using the AutoCAD graphics program, which is a universal graphic system environment for designing computer modeling. This

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AutoCAD system was developed by the Autodesk company and is intended to be used comfortably by a large number of users during the design process. In order to avoid misunderstandings, it should be noted that the AutoCAD program system is not taught to the students during the lesson. Without leaving the drawing science program, the teacher himself shows the concepts of drawing using the AutoCAD program, and the students draw the indicated information on the drawing paper. In this process, only the teacher is required to have sufficient knowledge of the AutoCAD program system. Below we will consider the integration of the AutoCAD program with the "Problematic method" from modern educational methods.

2. Materials and Methods

Later, pedagogues and psychologists are looking at the problematic method of education with great interest. According to this method, the acquisition of knowledge and the formation of skills and abilities are carried out through the independent practical and mental activity of students. When the method of problem-based education is used, students not only get ready-made knowledge for memorization, but also learn to acquire this knowledge independently. Pupils develop important qualities of mental activity, such as the ability to prove carefully drawn conclusions and provide evidence for their correctness. The problem-based teaching method is an important form of student activation. Its main elements include the creation of problem situations, the process of problem solving, and the processes of practical verification of the correctness of conclusions. Pupils are given a task that arouses their interest and desire to solve it, but it turns out that their knowledge and experience are not enough. Students feel an inner need to find a way out of the situation. Encourages to analyze the current situation, research. There is a contradiction between the level of knowledge of students, which is related to knowledge or a practical task, and which causes intensive thinking activity. The experience of educational work shows that it is appropriate to divide the problem method into three stages.

- Stage 1. The problem is solved by the teacher himself, because the students do not yet have enough knowledge and skills to solve it independently.
- Stage 2. Students are involved in solving the problem. They perform some elements of the solution independently.
- Stage 3. Students solve the whole task or problem under the guidance of the teacher

3. Results and Discussion

How can we teach students with AutoCad software in drawing classes using this method? After starting the lesson, students are asked a difficult question that we need to find the answer to: For example, find the incomplete view of the orthogonal projection of the given detail (Figure 1).

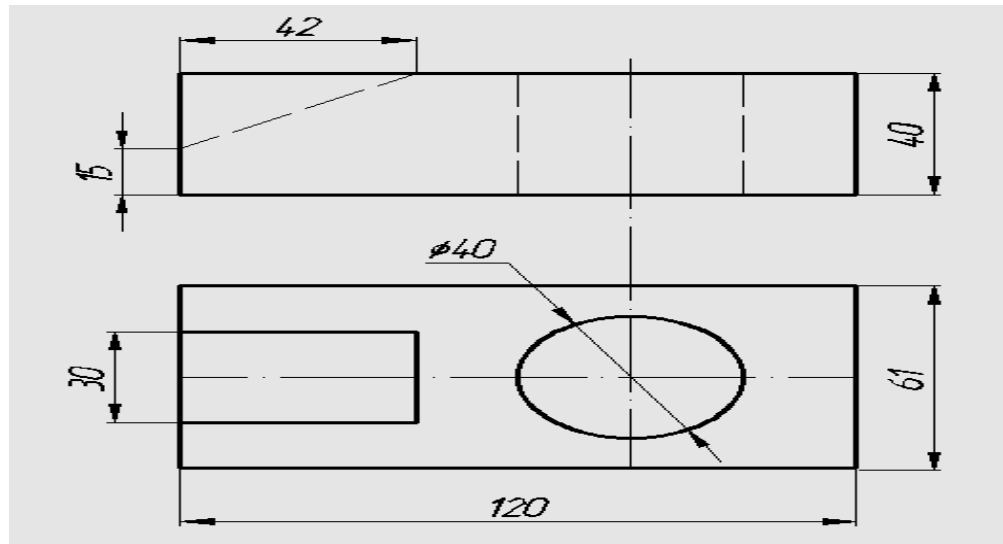


Figure 1. Incomplete view of the orthogonal projection

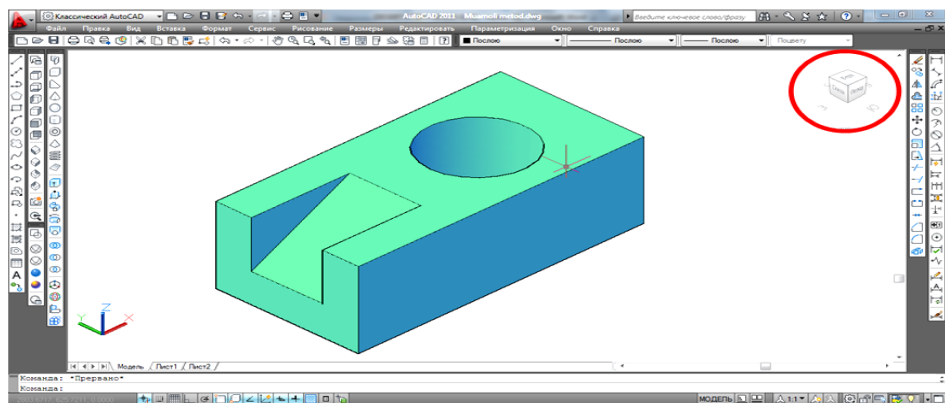


Figure 2. AutoCad 3D model

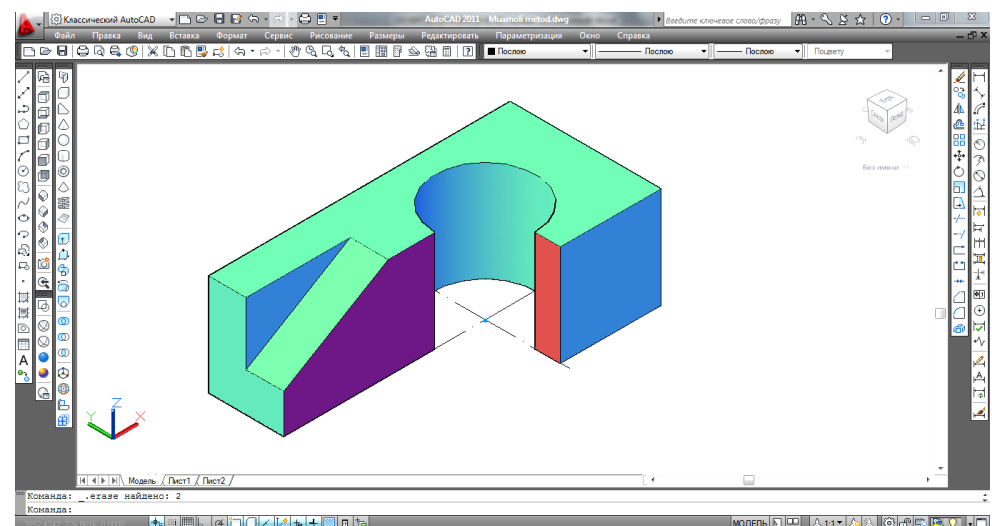


Figure 3. AutoCad 3D model

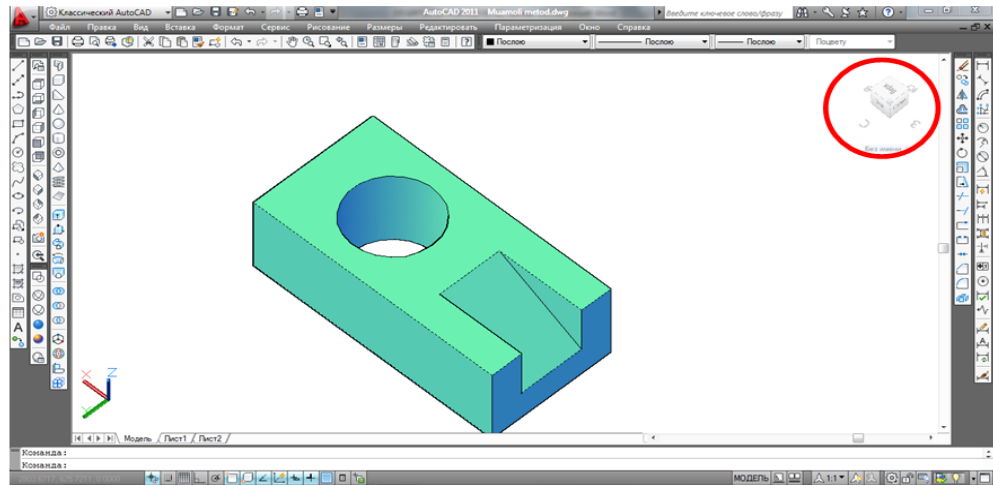


Figure 4. AutoCad 3D model

When we show this detailed drawing to students, they may not yet have the understanding and imagination to solve the problem. At first, we need to show the views of the detail being drawn through a mock-up or a 3D model with the help of computer programs. A simplified 3D model using AutoCad software is shown to students and detailed views are explained by rotating them using a video cube (Figure 2 and 3). The 3D model of the detail is cut and its internal views are shown (Figure 4). The teacher asks the students for their ideas on how to solve the problem, and under the guidance of the teacher, the drawing of the detail is completely drawn.

4. Conclusion

Today's modern pedagogic staff needs to be a master of their work, organize the lesson process effectively, divide the lesson time correctly, teach young students using modern information technologies. This process encourages drawing teachers to be more active. Because in the process of making drawings, the time limit may not be enough, which will cause students to not fully learn the process of making drawings. In this article, in order to provide the above ideas, a small methodical process of teaching using the AutoCad graphics program was studied. Methodical recommendations for performing graphic information and graphic laboratory work on a computer through the AutoCAD program were explained on the basis of drawings. If we use the information presented in the article, we can achieve high results in the field of drawing and engineering.

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