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TEACHING 3D DRAWING TECHNIQUES

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Abstract

This work covers the theoretical foundations and practical stages of teaching students the methodology of drawing in 3D style. The content of 3D graphics, its importance in art and design, its role in the development of spatial imagination and creative thinking are analyzed based on a scientific approach. The methodological part contains simple and practical methods for giving volume, applying light and shadow, applying the laws of perspective, and performing basic operations in digital graphics programs (Blender, SketchUp, etc.). This work serves to form solid skills in 3D visual art and introduce innovative approaches to the modern educational process.

Introduction

Today, digital technologies are developing rapidly, and new forms of art, in particular 3D graphics and 3D rendering techniques, are widely used. 3D drawing is of great importance not only in the design, animation, architecture and computer games industries, but also in the educational process in developing students' spatial thinking, creative thinking and technical skills. Therefore, developing a methodology for teaching drawing in 3D style and introducing it into the educational process is one of the urgent issues. This work covers the basic principles of 3D imaging, the laws of volume creation, working with light and shadow, elements of perspective, and the process of drawing 3D images using digital graphics programs. The methodology for teaching students this process step by step, selecting methods appropriate to their age characteristics, and reinforcing them through practical tasks is scientifically and practically analyzed.

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Theoretical foundations of working in 3D style

3D drawing is the art of representing objects in an image in three dimensions: height, width and depth. Its theoretical foundations are based on volume, space, light and perspective. The purpose of 3D graphics is to give a spatial appearance to lines and shapes located on a plane, that is, to ensure that they are close to their appearance in real life.

The important theoretical rules of drawing in 3D style are as follows:

Analysis of geometric shapes: each complex object (person, house, furniture) is actually made up of simple shapes such as a sphere, cylinder, cube.

Laws of perspective: for example, parallel lines approach a point as they move away.

Principles of light and shadow: Where the light source is located, the size, color, and shadow of the object change accordingly.

Spatial imagination: The artist must be able to imagine the shape and location of the object in 3 dimensions.

This theoretical knowledge provides the foundation for students to thoroughly learn how to draw 3D drawings.

Perspective is the most important part of 3D drawing. It explains why distant objects appear smaller.

3 main types of perspective:

1. One-point perspective - all lines point to one point.
2. Two-point perspective - for viewing a building or cube from two sides.
3. Three-point perspective - used for objects viewed from above or below.

Spatial imagination exercises:

Drawing a figure from above, below, and from the side.

Drawing a cube and a sphere by changing their position.

Make distant objects smaller, and nearby ones larger.

Effective methodology for teaching students to draw 3D drawings

Methodology is very important when teaching 3D drawings. An approach that is appropriate to the age, interest, and level of preparation of students will significantly increase the result. The main directions of effective methodology are as follows:

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1. Step-by-step approach
First, start with simple shapes: cube, sphere, cone. Then move on to complex shapes. This gradually develops spatial thinking.

2. Practical instructions and visual examples
Explaining 3D objects using videos, models, or real objects will better engage the student.

3. Reinforce light and shadow through practical exercises
Each lesson teaches drawing with one light source, and in the next lesson, drawing with several lights.

4. Introduction to digital programs
Creating simple objects in programs such as Blender, SketchUp, Sculptris increases students' interest and develops modern skills.

5. Challenging tasks and creative assignments
For example, tasks such as "drawing an object from 3 different perspectives" or "drawing by changing the direction of the shadow" strengthen independent thinking.

6. Reflection and evaluation
Analyzing work and reviewing mistakes together after each lesson motivates students.
This methodological approach helps to teach 3D drawing in an effective, interesting and systematic way.

Conclusion
The conducted analyses show that teaching 3D drawing significantly develops students' spatial thinking, imagination, creative search and technical skills. Working with digital programs creates a solid foundation for their successful future work in graphic design, architecture and IT.
Lessons organized on the basis of methodological recommendations interest students in learning, encourage independent work, and help them create complex

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volumetric images in a realistic manner. The practical significance of this work is that it serves to establish a systematic, modern, and effective process for teaching 3D drawing.

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