Published: April 30, 2025 | Pages: 96-98

MODERN PEDAGOGICAL TECHNOLOGIES IN TEACHING TECHNICAL DRAWING

Boburmirzo Bakhodir ogli Ko'kiyev

Head of the Department of Engineering and Computer Graphics, Chirchik State Pedagogical University, Candidate of Pedagogical Sciences (PhD), Uzbekistan

ABSTRACT:

The article discusses methods of activating students in technical drawing, as well as pedagogical technologies.

Keywords: Technology, creativity, design, projection, method, model, design.

INTRODUCTION

Today, although many scientific research works have been conducted on the problems of teaching engineering graphics in higher education institutions of the Republic, less attention has been paid to the pedagogical and psychological issues of teaching descriptive geometry and engineering graphics. The lack of sufficient research on improving the teaching methodology of the subject of construction drawing through the application of modern pedagogical technologies based on the comparative analysis method is a significant gap.

Another factor contributing to the successful resolution of these tasks is the awareness of higher education personnel, including pedagogical teachers, about the essence of modern teaching technologies and their ability to effectively apply them in the teaching process. Additionally, adopting a creative approach to organizing the teaching process is of great importance.

The subject of technical drawing is crucial for developing students' spatial imagination and shaping technical thinking. By applying modern pedagogical technologies, this subject can be taught in a more engaging and effective way. In this presentation, we will explore innovative methods and technologies that can be applied in technical drawing lessons. These methods help increase students' engagement, deepen their understanding of the subject, and develop practical skills.

INTERACTIVE 3D MODELING

1. **Familiarization with 3D software**: Students are introduced to 3D modeling programs such as AutoCAD and SolidWorks. The basic functions and interface of these programs are taught.
2. **Creating simple shapes**: Exercises are conducted to create basic geometric shapes like cubes, cylinders, and spheres in 3D format. During this process, students develop their spatial imagination.

Published: April 30, 2025 | Pages: 96-98

3. **Creating complex models**: Students learn to create complex 3D models of technical details by combining simple shapes. At this stage, students develop their design skills.
4. **Analyzing models**: Students learn how to view created 3D models from different angles, take cross-sections, and analyze them. This helps students develop their skills in reading technical drawings.

AUGMENTED REALITY (AR) TECHNOLOGY Essence of AR technology: Augmented Reality (AR) is a technology that adds virtual objects to real-world images. In technical drawing, this technology helps students visualize 2D drawings in 3D form. Using AR applications: Through special AR applications, students can scan simple drawings and view their 3D models. This method helps them understand drawings more quickly and easily. Creating AR projects: Students learn to create AR projects based on their own drawings. This process enhances their creative abilities and technical skills.

PROJECT-BASED LEARNING Choosing a project topic: Students select a project topic to solve a real-world problem. For example, redesigning the school yard or creating a new classroom design. Forming groups: The class is divided into several small groups. Tasks are distributed among group members: designers, draftsmen, presenters, etc. Implementing the project: Groups carry out their projects step by step: developing ideas, sketching, 3D modeling, and preparing technical drawings. Presentation and evaluation: At the end of the project, each group presents its work. The teacher and other students evaluate the projects and provide feedback.

PROBLEM-BASED LEARNING TECHNOLOGY

1	2	3	4
Problem Identification.	**Data Collection.**	**Proposing Solutions.**	**Justifying the Solution.**
The teacher presents the students with a technical problem from real life. For example, developing a new construction project to enhance the stability of an existing building	Students collect the necessary information to solve the problem. In this process, they develop skills in using various sources and sorting relevant information.	Students propose different solutions to the problem based on the collected information. In this stage, they demonstrate their creative thinking and ability to apply technical knowledge in practice.	Each student justifies their solution with technical drawings and calculations. In this process, they develop skills to express their ideas clearly and understandably.

This helps activate students through educational technologies.

REFERENCES

1. Kukiev Boburmirzo Bahodir Ugli, (2020) Problem-based learning technology in teaching auxiliary projection techniques. Journal of Critical Reviews, 7(6), 917-921.

Published: April 30, 2025 | Pages: 96-98

2. Hayitov.J.M.(2022).Muhandislik grafikasi fanlarini axborot-kommunikasiya texnologiyalari yordamidaoʻqitish orqali talabalarni ijodkorlik qobilyatini oshirish. Science and education scientific journal. ISSN 2181-0842.VOLUME 3, ISSUE 11.
3. N. Valiyev. Chizmachilik. (geometrik chizmachilik). Oʻquv qoʻllanma. – T.: 2013.
4. Pulat Adilov,. (2018). New View to Executing Sketch and Technical Drawing Eastern European Scientific Journal (ISSN 2199-7977) Journal 102-104.
5. Jumayev.I.O. (2021) Muhandislik grafikasi fanlarida uch oʻlchamli fazoni auto cad dasturidan foydalanib qoʻllash usullari va ahamiyati. “Муғаллим ҳәм үзликсиз билимлендириў” 99-101-b.
6. Achilov Nurbek Norboy oʻgʻli, Bekqulov Qudrat Shaydulloyevich, Koʻkiyev Boburmirzo Baxodir oʻgʻli & Jumayev Isroil Omandovlat oʻgʻli (2020). Methods of developing creative abilities in children. European Journal of Research and Reflection in Educational Sciences, 8 (10), Part II, 151-153.
7. Bekqulov Qudrat Shaydulloyevich., Kukiyev Boburmirzo Bahodir ugli., Avazova Guzal Rustambek qizi. (2020). The works in the framework of five initiatives at chirchik state pedagogical institute in tashkent region. EPRA International Journal of Research and Development, 5 (3), p. 411-412.
8. Boizaqova, S. A., Bekqulov Q.Sh. (2021). Koʻrinishlar mavzusni tushuntirishda detal modelini oʻziga qarab oʻrganishning ahamiyat. Academic research in educational sciences, 2(3), 96-101.
9. Koʻkiyev, J. Sh., Bekqulov Q.Sh. (2021). Muhandislik grafikasi fanlarini boshqa fanlar bilan bogʻliqligi. Academic research in educational sciences, 2(3), 34-39.
10. Koʻkiyev , B. (2024). MUHANDISLIK GRAFIKASI FANLARINI 3D MODELLAR ORQALI OʻQITISHNING AMALIY AHAMIYATI. Journal of Science-Innovative Research in Uzbekistan, 2(7), 210–216. Retrieved from https://inlibrary.uz/index.php/journal-science-innovative/article/view/36058.
11. Kukiyev, Boburmirzo. «TALABLARNING LOYIHALASH QOBILIYATINI RIVOJLANTIRISH USULLARI». G'arbiy Evropa zamonaviy eksperimentlar va ilmiy usullar jurnali 2.6 (2024): 73-79.
12. Koʻkiyev, Boburmirzo. "LOYIHALASHTIRISH VA PROYEKSIYALASH USULLARI HAQIDA." INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE on the topic:“Priority areas for ensuring the continuity of fine art education: problems and solutions”. Vol. 1. No. 01. 2023.
13. Koʻkiyev B.B. Chizmachilik oʻqitish metodikasi / oʻquv qoʻllanma 2022 128 b.
14. Kukiev Boburmirzo Baxodir ogli. COORDINATE STUDENTS PROJECT CAPABILITIES FOYDALANIB FROM USULLARI REVIVAL METHODOLOGY IMPROVEMENT monograph. 2025. 182 b.
15. Koʻkiyev B.B. Chizma geometriya / darslik 2022 128 b.
16. Koʻkiyev B.B. Chizmachilik / oʻquv qoʻllanma. 2022 128 b.