



**METHODOLOGY OF DEVELOPMENT OF PRACTICAL SKILLS OF
STUDENTS IN LEARNING DRAWING GEOMETRY**

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ABSTRACT

The main goal of developing students' practical skills in the teaching of drawing geometry is to help them to coordinate and apply this knowledge in practice, rather than to study the topics of drawing geometry theoretically. As practical skills are developed, students understand how to apply sketch geometry to real-life situations and learn to use this knowledge through practical problem solving, graph solving, plotting, and other practical activities.

KEYWORDS

Geometry, drawing, practical skills, problem, theory, students, skill, topic.

Introduction

This is very important for their better understanding and coordination of drawing geometry. As practical skills are developed, students will be ready to be tested, solve problems, and learn practical geometry. This is important for them to be successful in learning sketch geometry and to use this knowledge in their lives.

As a result of teaching the subject "Drawing geometry and engineering graphics" in higher education institutions, the basis for developing graphic competences of students and acquiring graphic knowledge related to the field is created. It is not for nothing that they say that drawing is the language of technology. Based on this, the main problem in teaching the subject "Drawing geometry and engineering graphics" is to develop the students' spatial imagination. As a result of educational reforms, young people who have graduated from academic lyceums, vocational schools, colleges, and technical institutes in the social sphere can be accepted for admission to engineering, technology, construction, and engineering fields. On the one hand, if this is a practical result of the reforms that are being made to satisfy the demand for higher education, on the other hand, it requires a high level of graphic competence to study in this direction.

The lack of development of students' spatial imagination in learning the subject "Drawing geometry and engineering graphics" creates various problems in imparting knowledge in this subject. Modern multimedia computer technologies and computer graphics should be effectively used to find an acceptable solution to the existing problem. The development of spatial imagination in students to understand and consolidate the acquired knowledge in the subject "Drawing geometry and geometric graphics" serves to ensure the quality and effectiveness of education. Based on the above considerations, the issue of developing students' spatial imagination in an intensive way is on the agenda. For this purpose, with the help of multimedia electronic textbooks, computer graphics, and virtual visual aids, students will develop science content and understanding skills.

"Experimental work was carried out on the development of students' spatial imagination based on intensive methods in the study of "Drawing geometry and engineering graphics". For this purpose, a multimedia electronic textbook (multimedia e-book, a set of graded (level) tasks, intelligent computer houses) from the subject "Drawing geometry and engineering graphics" was carried out. , video lesson, multivariate stratified (level) test, virtual detail models, glossary) were created.

Possibilities of using multimedia computer technologies, engineering computer graphics and visualized virtual tools in "Drawing geometry and engineering graphics".

"Using intensive methods of developing students' spatial imagination in the study of drawing geometry and engineering graphics: educational-intellectual computer games, control-level tasks and a set of diagnostic-virtual detailed models on the basis of systematization of the influence of positive and negative factors in reflexive, intensive methods of education, spatial imagination of students development is of great importance.

The following methods can be used to develop students' practical skills in the teaching of drawing geometry:

1. Practical exercises: Students should work on practical exercises and examples to learn the topics of drawing geometry. It helps them to learn drawing geometry by putting their theoretical knowledge into practice, solving drawings, plotting points and other practical activities.

2. Demonstrations: Teachers use demonstrations and visual materials to teach the topics of sketch geometry. It helps students learn sketch geometry by explaining concepts, showing and explaining drawings and shapes.

3. Interactive textbooks: Through interactive textbooks, online platforms and programs, students can perform interactive tasks to learn drawing geometry. This will help them to test themselves, solve problems and learn drawing geometry practically.

4. Group work: Students can develop their practical skills in the study of sketch geometry through group work and joint consultation. Group work provides an opportunity for them to exchange ideas with each other, work on problems and find solutions.

5. Real life examples: In learning sketch geometry, it is very important for students to provide real life examples and show them how to use sketch geometry in practice. This will help them to put their theoretical knowledge into practice and how to solve practical problems of drawing geometry.

"Using the possibilities of multimedia computer technologies to develop students' spatial imagination in the study of drawing, geometry and engineering graphics, creating multimedia electronic lesson developments aimed at developing spatial imagination, video lessons for lectures and practical lessons, creating stratified multiple-choice tests to analyze the development of students' spatial imagination, computer graphics using the possibilities of developing and creating stratified graphic assignments, intellectual computer houses, and virtual detail models aimed at developing students' spatial imagination.

In the explanation of topics in the subject of "Drawing geometry and engineering graphics", the use of virtual modeling (2D, 3D) and interactive detailing capabilities of the AutoCAD graphic program will allow students to share the knowledge they are combining in a fun, simple, and effective way.

Depending on the type of lesson, the teacher of science divides the time of using multimedia computer technologies and computer graphics. As a result, it is appropriate to use a multimedia electronic textbook or computer graphics in the necessary part of the lesson so that the students can understand the information given on the subject, visualize the details of the drawing, and spatially imagine the

assignments. The information given here is of great importance in the ability of students to spatially imagine the information that is being combined with animation, video fragment, visual, illustrative and others. When the student imagines the appearance, situation, condition, shape, size of the drawings, he completes the knowledge he is getting.

The following methods are widely used in teaching geometry in higher education institutions:

1. Textbooks and electronic resources: Textbooks, manuals and electronic resources are used to teach geometry classes. These materials help students learn geometry concepts.
2. Interactive lessons: Teachers use it to motivate students by creating interactive lessons and tasks. This method enhances students' work and exchange of ideas.
3. Mathematical Modeling: Students learn to solve geometry problems using mathematical models. This method helps to put students' theory into practice.
4. Group work: Students can help each other and solve problems as a team through group work. This method helps to develop physical and intellectual abilities of students.
5. Hands-on Activities: Hands-on activities allow students to experience geometry concepts in practice. This method is important for the development of students' thinking and implementation of theory.
6. Examinations and tests: Teachers organize examinations and tests to check the level of knowledge of students. This method helps to test students' acquired knowledge.

It is known from Jakhan's experience that creating opportunities for independent education, finding the necessary information on this subject in a modern way helps students to learn independently. The multimedia electronic textbook created on the subject "Drawing geometry and engineering graphics" is intended for learning in all types of education. In addition, there are opportunities for independent and distance education to obtain information on the subject, to study and to control the acquired knowledge. In the multimedia e-textbook, you can create and learn the drawings related to the topics in animation and video. In addition, it is possible to automatically control the drawing sequence. A variety of practical tasks and a sample of their execution can be built with Oracle. The student can repeat the task for the sequence of completion and to reinforce and extend the part he did not understand. It acts as a tutor for students.

The multimedia electronic textbook is the main factor for the development of students' spatial imagination in teaching the subject "Drawing, geometry and engineering graphics", providing visibility in this subject. That is, students' spatial imagination is developed on the basis of demonstrative, visual, illustrative, conceptual materials. In addition, it increases the quality of education, enriches, tests, forms and develops knowledge based on this.

The main goal of teaching geometry in higher education institutions is to help students use mathematics, develop theoretical and practical skills, develop logic and problem solving, calculation and analysis skills. Geometry helps students understand how abstract concepts in mathematics can be applied in real life.

By teaching geometry, students:

1. Learn theoretical knowledge: Geometry gives students the opportunity to learn geometric objects and their properties, geometric formulations, coordinate systems, and other theoretical knowledge.

2. Development of practical skills: In the process of teaching geometry, students learn the topics of drawing geometry by developing practical skills. It develops their thinking and problem-solving skills through problem solving, graphing, dot plotting, and other hands-on activities.

3. Development of logic and analysis skills: By teaching geometry, students develop logic and analysis skills. They develop logical thinking in analyzing problems, logically solving problems and solving practical problems.

4. Learning to use mathematics: Teaching geometry teaches students the basic principles of using mathematics. They understand how to apply mathematical formulas and concepts related to geometry to mathematical calculations and analysis.

In addition, teaching geometry develops students' reasoning, problem-solving, logic, and analytical skills and strengthens them in the field of mathematics.

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