

THE IMPORTANCE OF EDUCATION IN TEACHING GEOMETRIC CONSTRUCTIONS.

https://doi.org/10.5281/zenodo.14888250

Galimova Shokhsanam Khabibulla qizi

Senior Lecturer of Tashkent University of Architecture and Civil engineering shokhsanamgalimova1993@gmail.com

Abstract: This article reflects that great attention is paid to quality education and in this process efforts are made to ensure development based on spiritual development. Pedagogical technology is a product of the development of modern didactics and pedagogy. Particular attention is paid to new pedagogical technologies in accordance with the requirements of the time in the teaching of drawing geometry. The theme, Integrating Education and Learning in the Teaching of Geometric Constructions, explores the importance of combining evidence-based pedagogical approaches as well as educational perspectives in teaching geometric knowledge.

Key Words: Education, training, pedagogy, drawing geometry, point, straight line, circle, cone.

INTRODUCTION.

Education is the cornerstone of developing critical thinking skills, and when it comes to the study of mathematics, geometric constructions serve as a powerful tool for fostering both logic and creativity. Geometric constructions - the act of drawing shapes, angles, and other figures using only a compass, straightedge, and a set of logical steps are not just practical exercises; they are a gateway to deeper understanding and intellectual development. Whether students are learning basic constructions like bisecting angles or more complex ones such as constructing regular polygons, the importance of education in teaching geometric constructions cannot be overstated.

Today, in our country, the attention to spirituality and enlightenment, education, and formation of the perfect generation of New Uzbekistan has increased tremendously. It is no coincidence that in the Development Strategy for 2022-2026, further raising the morale of the society and developing the field of education and education on this basis is defined as one of the most priority directions of the policy of our state. In Uzbekistan, this law is followed without deviation. Raising the morale of the people is considered as one of the main factors



for the development of a well-formed, modern-minded young generation. It should be noted that spirituality and education never negate each other, on the contrary, they strengthen each other, complement each other, interact and develop.

In this regard, the fact that high attention is paid to quality education in our country in 2024 and that efforts are being made to ensure development on the basis of spiritual development in this process, certainly reflects the demands of today's life. The important task of quality education in this area is to educate young people about self-awareness, to make them realize how important the material and spiritual heritage left by ancestors is to others, and to strengthen the sense of pride and pride in them.

METHODS

Pedagogical technology is a product of the development of modern didactics and pedagogy. It can be considered as a new stage on the way to higher level implementation of practical tasks in all main areas of pedagogy that have been existing and are being improved. Creation of a module based on new pedagogical technologies in accordance with the requirements of the time in teaching drawing geometry determines the relevance of the topic.Geometric constructions require a high level of precision. In many cases, a small error in drawing a line or placing a point can lead to incorrect results. This precision demands that students pay close attention to detail and follow instructions carefully. As students practice constructing geometric figures, they learn the importance of accuracy and consistency, skills that are beneficial not only in mathematics but also in a variety of fields such as engineering, architecture, and computer science.

Furthermore, geometric constructions help students understand the concept of proof and how accuracy in their steps leads to valid conclusions. This focus on precision and attention to detail fosters a disciplined approach to problem-solving that can be applied to other areas of life and study.

The teacher presents the lecture using visual materials. Provides a general understanding of the requirements for performing geometric designs. Teaches how to draw interesting geometric shapes. Familiarizes with drawings and tables and discusses their content. Write down rules and definitions and give examples of them. Stage 3 Final (10 min.). Concludes the topic and focuses students' attention on the main issue. He listens, clarifies his thoughts. Encourages active student participation. They are familiar with the evaluation criteria.

RESULTS



A homework assignment is to describe some of the interesting geometric shapes. Writes the assignment. A straight line can be drawn perpendicular to a straight line using circles and triangles. (Fig. 1 a,b).

Example: Let a straight line perpendicular to a straight line be passed through its point A (Fig. 1, a). Points 1 and 2 are selected at an equal distance from point A, and arcs of the same size are drawn from these points. As a result of the intersection of the arcs, points 3 and 4 are formed, which, when connected, form a perpendicular line through point A to the given straight line.

An example. Let a straight line be drawn parallel to the straight line through point A (Fig. 1, s). One side of a triangle is placed on a given straight line, and another triangle or straight line is placed on its other side. A superimposed triangle or a straight line is held down with the left hand, and the superimposed triangle on the straight line is gently pushed. When it reaches point A, it is stopped and a line is drawn. Then a line parallel to the given straight line through point A is formed.



Example: Let a straight line parallel to a straight line be drawn at a distance of 30 mm (Figure 2). An auxiliary line is drawn perpendicular to the given straight line and 30 mm is measured to it. A straight line parallel to the given straight line from point A is drawn using triangles. Or, from two points of the given straight line, perpendicular auxiliary lines are drawn and a section of 30 mm is measured on them. If points A and V are interconnected, a straight line parallel to the given straight line straight line will be drawn at a distance of 30 mm (Fig. 2, b). Or, arcs with a radius of 30 mm are drawn in a circle from two points of a given straight line, and a straight line is drawn on these arcs (Fig. 2, s).

To divide the section AV into two equal parts, arcs of the same radius are drawn intersecting from its points A and V. If the resulting points 1 and 2 are connected, it intersects AV at C. Then a point S is formed that divides the section into two equal parts (Fig. 3, a).







If it is necessary to divide the cross-section AV into multiple, for example, 5 parts, then an auxiliary straight line is drawn from one end of the cross-section, for example, A, at an arbitrary angle. 5 pieces of the same size are measured from point A to the auxiliary line. The last 51 points are connected with V, and lines 41, 31, 21, 11 are drawn parallel to it. Then the AV section is divided into 5 equal parts (Fig. 3, b).

Slopes and tapers. Angles of deviation of planes and surfaces relative to the horizontal plane or relative to each other are measured by the slope of the straight line. The slope of a straight line means its angle of inclination with respect to the horizontal line.

The slope can usually be expressed as the ratio of two numbers or as a percentage. According to GOST 2.370-68, the slope sign is in the form of «<», «>», it is placed in front of the size number, and the tip of the sign is directed to the direction in which the slope is.

Example: a) Make a 1:4 slope:

To make this slope, we take the sum and denominator of the ratio as the legs of a right-angled triangle and find its hypotenuse, this hypotenuse is the requested slope.

b) Make a 20 percent slope.

As you know, 20% is 20% of 100%t, so if you want to make a 1 : 5 slope, here's how to do it (shown in Figure 4).

The purpose of the lesson: To teach students to divide circles into equal parts and make regular polygons. Pedagogical tasks: To provide general information about dividing a circle into equal parts. Results of educational activities. Dividing a circle into equal parts will have general information. To provide general information about making regular polygons.

Dividing the circle into equal parts. Making regular polygons. Many drawings involve dividing circles into equal parts or making regular polygons. For this, we refer to the geometry course.

Issue 1. Let a circle of radius R be drawn from center 0 and divided into three equal parts. Making: as we know from the geometry course, the side of a regular hexagon is equal to a=R, so if we draw a circle with an arc equal to R, it will be



divided into six equal parts, and if we connect these points and draw a regular triangle, a regular triangle will be formed.

DISCUSSION

The combination of education and upbringing of teaching geometric constructions is important. In teaching geometry to students, a clear and logical approach to education and the shaping effect of education complement each other. This harmony ensures not only scientific literacy, but also moral and aesthetic development of students. Also, through geometry, students develop independent thinking, creative approach, and problem-solving skills, which provide a strong foundation for their future success.

While geometric constructions may seem rigid in their rules, they also provide ample opportunity for creativity and innovation. Instructors can challenge students to use their construction skills to solve complex problems or to find different ways to approach a construction task. There is often more than one way to construct a particular geometric figure, and students who are encouraged to explore different methods will develop their creativity in problem-solving.

This aspect of geometric constructions allows students to take ownership of their learning. They become explorers, testing their ideas and discovering new relationships within geometry. This creative process not only makes learning more engaging but also helps students develop a mindset of curiosity and experimentation that extends beyond geometry. One of the most valuable aspects of teaching geometric constructions is their practical application. Geometry is not just an abstract subject; it has real-world implications in fields such as architecture, engineering, art, and design. Through geometric constructions, students can see how the principles they are learning are directly applicable to the world around them. For instance, the construction of angles, circles, and polygons is a foundational skill in architecture, where precise measurements and angles are essential to building structures.

By understanding geometric principles through the act of construction, students gain an appreciation for the role geometry plays in their everyday lives. They are also better prepared for future studies in related fields, where their construction skills can be applied to more advanced and specialized tasks.

CONCLUSION

Education is a dual process consisting of the activities of pedagogues to impart knowledge and the activities of students to acquire knowledge and study. Although the words "education" and "education" are often used together, they have their own differences and aspects of mutual connection. Education is not possible without education. The purpose of education is to educate. In summary, the



AMERICAN JOURNAL OF EDUCATION AND LEARNING ISSN: 2996-5128 (online) | ResearchBib (IF) = 9.918 IMPACT FACTOR Volume-3| Issue-2| 2025 Published: |28-02-2025|

importance of education in teaching geometric constructions extends far beyond just learning how to draw shapes. The process of geometric construction promotes critical thinking, spatial awareness, precision, creativity, and collaboration-all of which are vital skills for students' personal and academic growth. Moreover, it connects abstract mathematical principles to real-world applications, making geometry more meaningful and engaging for students. As students master geometric constructions, they not only become more proficient in geometry but also develop skills that are valuable in a wide range of disciplines and life experiences. Thus, teaching geometric constructions is an essential component of a well-rounded education that fosters both intellectual and personal development.

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