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## THE IMPORTANCE OF PROBLEM EDUCATIONAL TECHNOLOGY IN EDUCATING STUDENTS IN DRAWING CLASSES

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### ABSTRACT

*This article reveals topical issues on the use of modern pedagogical technologies in drawing lessons. Therefore, it contains recommendations for reading drawings, checking students' knowledge, and increasing activity during the lesson. The methods of using innovative technologies in drawing classes highlighted.*

**KEYWORDS:** *Innovation, Technology, Drawing, Space, Design, Introduction, Receivership, Problem Learning Technology, Graphic Literacy.*

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### 1. INTRODUCTION

Teachers have the ability to organize the process of training in non-traditional forms, aimed at teaching the basics of general education, special subjects, to achieve the design of the educational process based on a perfect standard, to use these projects wisely. Thorough, in-depth mastery of theoretical knowledge by learners can be a guarantee of the formation of practical skills and competencies. [1,2]

One of the most important requirements for the organization of modern education is to achieve high results in a short time without spending too much mental and physical effort. In a short period of time to provide students with specific theoretical knowledge, to develop in them the skills and competencies for a particular activity, as well as to monitor the activities of students, to assess the level of knowledge, skills and abilities acquired by them. Requires high pedagogical skills and a new approach to the educational process. [2,3,4]

In recent years, a number of credible interactive methods and approaches to developmental education have been sought to enrich the content of education. This research mainly conducted in three areas – problem-based, programmed and differentiated education. Problematic approaches to education are becoming more prevalent, especially in school practice. [5,6]

What is the problem situation? At the heart of the problem in teaching is the difficulty. Overcome it by the student's own active thinking. The problem situation should be relevant to the student. Its onset may be related to the student's previous experience and interests, and ultimately to the general problem situation as well as the individual's belief in its own power. [7,8]

The general problem situation can be divided into a number of sub-problems that are interrelated and interrelated.

Types of problem situations that are common in the learning process:

1. A problematic situation arises when students do not see the difference between

the system of knowledge they have acquired and the new knowledge they have acquired.

2. There is also the problem of choosing the most appropriate and unique solution to a problem in a student's knowledge system.
3. Students face a challenging situation when they are looking for new ways to put their knowledge into practice in a new environment.
4. A problem situation arises when a method chosen in which a problem that can solved theoretically cannot solved in practice or is not expedient, and when there is a lack of theoretical basis for a practical solution.
5. The problem situation in solving the technical problem is because the appearance of the schematic drawings and the technical device do not correspond directly to the design.

An alternative to problem-based learning is "heuristic" learning. [9,10,11]

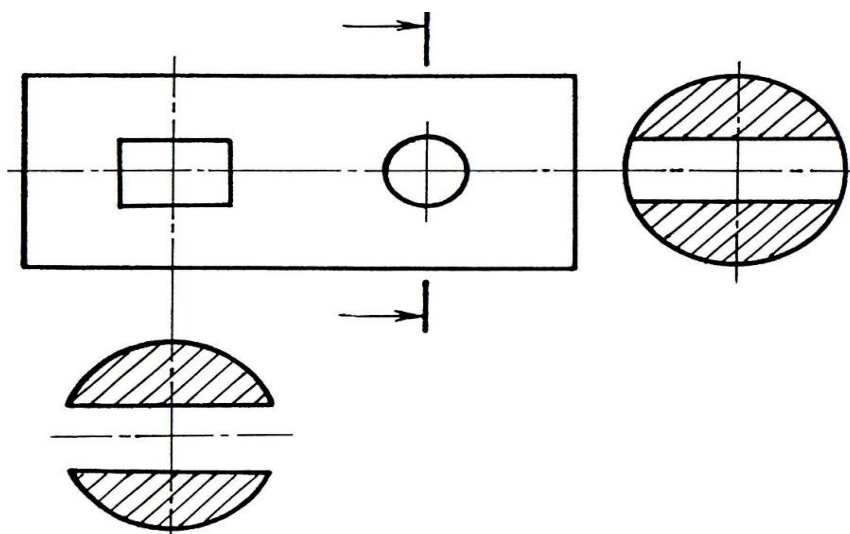
The role of the teacher in problem situations the nature and issues of problem-based learning provide enough new insights into students' activities. They include preparing material for students, mastering the situation, creating a problem situation at any time and finding ways out of it, and providing students with information on the topic. [12,13]

Here, the student has to take the lead in solving the problem together with the students, and he has to be at a much higher level than them. It is important to guide students in solving the problem.

Problem-based learning technologies are key concepts in problem-based learning, and problem solving is a "problem" and a "problem-solving". [14,15]

Problem situations can be natural or artificial. For example, in geometric constructions, dividing a circle into six equal parts and making regular hexagons, some of the sides of a hexagon may be smaller or larger. You need to find out what caused the problem. Research has shown that the centerlines of a circle are not perpendicular to each other. When you redraw, the result is correct. Of course, this problem is the result of neglect. [16,17,18]

For example, when students are doing a cut topic independently, some do it against a standard. Analyzing the cuts made (Figure 1.1) the following conclusions can be drawn:



**Figure 1.1**

Figure 1.1

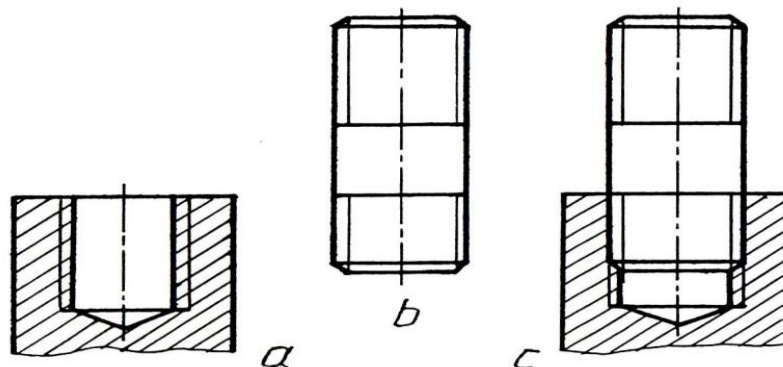
- 1) Not all students understood the surface of the part to be cut.
- 2) The groove on the surface of the detail misunderstood by some. That is a mistake. After analyzing how this problem arose, the following conclusions can draw.
- 3) The standard requirements did not fully explain in detail by the teacher when passing the cut topic or some elements did not take into account in the explanation process. As a result, students have different perceptions. Therefore, the cut is not marked.
- 4) The teaching process was interesting, not exciting, with little attention paid to standard requirements.
- 5) The lesson did strengthen to the required level, i.e. the teacher has not satisfactorily tested the knowledge acquired by the students through question and answer or various pedagogical factors.

The task may not be a problem in essence if it meets the following requirements [19,20,21]:

- 1) Does not make it difficult for students to think (think) while thinking about the problem being studied;
- 2) If students are interested in learning in every way;
- 3) Students rely on previous experience and knowledge in the analysis process.

If the teacher notices that the students are losing interest in the topic during the lesson, then it is necessary to create an artificial problem situation and draw the attention of all students to this problem situation. For example, if the lesson is about analyzing a detail (model), the teacher will ask the students why this hole in the detail is needed. To solve the problem, students begin to think in different ways, and in the process of thinking, different answers emerge. Selects the most appropriate (if any) student answer and comments on it. During this time, students will continue to focus on the topic. [22,23]

Problems can arise in every lesson, in every subject, in every student, and even in every teacher. However, it can also be a good idea to create a problem situation during the lesson, that is, to get the students' attention to the topic. It is a question-and-answer method to engage students in solving a problem. For example, when describing a pin joint in detachable joints, the problem arises with the question of what changes occur in the cell after the pin screwed into the slot. In explaining the situation, he draws the students' attention to what has changed. The results of the question and answer will be clarified. However, some students may not be able to diagnose this problem. At that time, the pin is twisted (prepared by the teacher) using a flat model (Figure 1.2). [24,25]



**FIGURE 1.2**

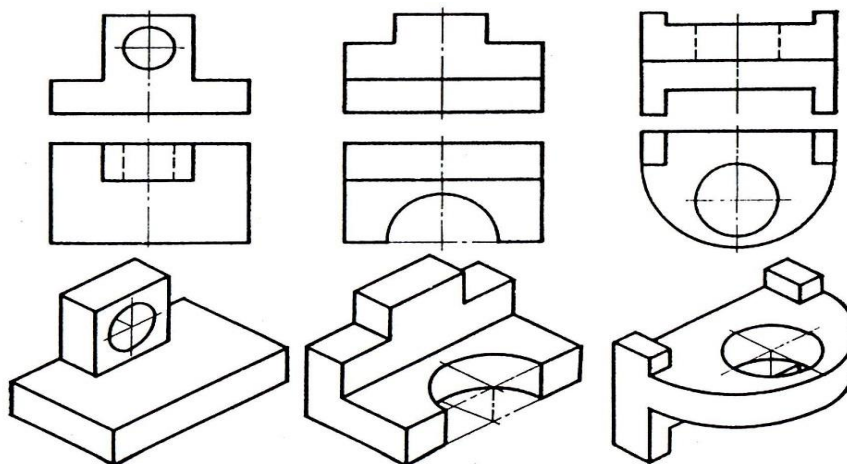
The cardboard pin is cut from the outside of the contour and shown as inserted into the pin slot. This will determine how the change occurred and resolve the issue. Another problem arises here, which is why the contours at the end of the pin thread and the beginning of the nest intersect at the same contour. To solve this problem, the pin slowly lifted upwards and the end of the thread moved upwards. When pushed back down, the beginning of the nest joins the contour. It inserted (unloaded) because the non-threaded part of the pin does not fit into the threaded slot. [26,27]

Students will be given a syllabus on the problem at hand.

- 1) What is the problem with the overall size of a detail when it is overlaid on the inside or outside of a detail with respect to the contour of the detail?
- 2) If the detail drawing is given in **M1:1** what is the problem if the dimensions are given in **M2:1** after copying it in **M2:1**?
- 3) What is the problem in generating axonometric projections?
- 4) Identify the problem that arises when drawing the assembly drawing in detail.
- 5) What are the problems with reading diagrams?

**EXAMPLE 1. WHO QUICKLY FINDS A DIDACTIC EXERCISE?**

The condition of the exercise. Identify missing lines and errors in detail views (Figure 1.3).



*Figure 1.3*

**The goal.** Improve students' competencies by correcting shortcomings in drawings, teaching them to analyze drawings carefully.

**Equipment.** Oversized drawings, vivid images, or models of several details that are easily visible to students.

**Details of the exercise.** The teacher hangs a poster on the board with some lines of the details missing, and a clear picture of the details on the posters covered with paper. Then from the students asks what problems are in the drawings and explains to the students what the problem is. However, if students still have difficulty answering, it will reveal a clear picture of these details. Even then, if they have difficulty, the teacher will try to solve the problem by asking students guiding questions. At the end of the exercise, students' answers be analyzed and the one with the most correct and best answer will be encouraged. [28,29]

Helps to create problem situations for students in drawing lessons: draws each drawing with

interest, develops their creativity, creativity, and develops personal qualities such as aspiration. If every teacher creates problem situations in drawing lessons, albeit artificially, the student will be able to think easily and become an active participant in the learning process, quickly imagining even complex drawings without the help of anyone in drawing lessons. [30]

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