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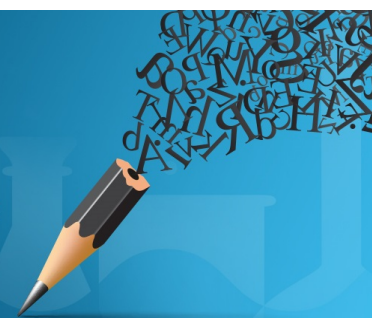


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# Increasing the Effectiveness of Lessons by Creating a Problem Situation in Teaching Drawing

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**Abstract.** The problem is that the student is aware of new knowledge, new methods, new advanced technology and behavioral problems. If the student does not get the starting point for his creative search to overcome the difficulty, he cannot think about it. So the student does not accept it to solve it. The student's thinking begins with the description and identification of the problem. Now, the problem situation becomes a problem. The problem does not indicate the direction of the solution, nor does not limit it. Some parameters for the solution will be a problematic issue. During the course of the lesson the problematic situations that arise in the work of the student's thinking, which are logical, search for and seek scientific conclusions.

**Keywords:** Problems, teaching methods, new pedagogical technologies, problem solving, logic ideas.

## INTRODUCTION

What is the problem situation? The essence of a problematic situation in teaching is that it causes difficulty. It can be overcome by the student with his own thinking activity. The problem situation should be significant to the student. Its occurrence should be related to the student's previous experience and interest and should ultimately include personal issues as well as the general problem situation.

Fundamentals of Problem-Based Education American psychologist, philosopher, and educator J. Dewey (1859-1952) opened an experimental school in Chicago in 1894. Develops a curriculum for active learning in play and labor. Works to provide students with new knowledge by creating and solving problematic issues and situations in the classroom.

The general problem situation should be divided into a number of sub-problems that arise and are related to each other.

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

The problematic situation arises from the discrepancy between the system of knowledge acquired by students and the new knowledge.

There is also a problem in solving the problem in the system of students' knowledge, in choosing the most appropriate one.

Students face a problematic situation when they apply their knowledge in new situations and look for new ways.

A problematic situation arises when you choose a method that is practically unsolvable or inexpedient to solve problems that can be solved theoretically. And if its theoretical foundations are lacking when a practical solution is implemented.

The reason for the problematic situation in solving technical problems is the appearance of schematic images and the direct incompatibility of the technical device in the constructive design. An alternative view of problem-based learning is heuristic learning.

Rules for organizing problem situations:

Theoretical and practical exercises set for students should be such that they acquire new knowledge. Let the task set before the students correspond to their intellectual potential.

When faced with more complex situations, a system of sequential application of problematic situations should be established. The first problematic situation here is the need for students to want to know.

## METHODS

Procedure for applying the programmed method. Then the teacher will have to implement a whole system. In this case, each issue consists of separate parts on the basis of the program and is developed independently or with the participation of the teacher to perform the task in a separate or focused method.

When the problem situation reaches the "nearest" development zone (zone), students can solve the problem by using the limits of their knowledge and the level of intellectual and positive activity.

The role of the teacher in the problem situation the nature and objectives of problem-based learning introduce sufficiently new assimilations into the teacher's work. They include preparing material for students, creating situational stages, responding to them, mastering the task given to students very well, knowing how to create a problematic situation and get out of it at any time, providing students with information on the topic.

Here, the teacher has to take the lead in solving the problem that arises in the problem situation together with the students and has to stand on a much higher level than them. It is the responsibility of the students to guide them in solving the problem.

The main concepts of the problem-based learning complex are the problem situation, the "problem" and the "problem problem".

The problem situation is the student's conscious difficulty in acquiring new knowledge, new methods, new modern technologies, and actions. If a student is not given the initial information for his or her creative pursuit to overcome adversity, there will be no food to think about. So the student does not accept it for solving. Student thinking begins with describing the problem and identifying it. Now in this case, the problematic situation becomes a problem.

The problem does not indicate the direction of the solution, nor does it limit it. There will be a problem where some parameters are specified for the solution.

Problem situations can be naturally created or artificially created. For example, in geometric constructions, when a circle is divided into six equal parts, and a regular hexagon is made, some of the sides of the hexagon may become smaller or larger. You have to fix it by looking for what caused such a problem. Studies have shown that the center lines 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.

Students, for example, in the course of independent study on the topic of cutting, some of them do non-standard work (Figure 1, a, b).



FIGURE 1. Non- standard work (a, b).

An analysis of the cuts made can lead to the following conclusions:

All students correctly understood the surface of the detail on which the cut was to be made. The groove on the surface was misunderstood by some. Therefore, an error was made.

After analyzing how this problem arose, the following conclusions can be drawn:

The standard requirements were not explained in full and in detail by the teacher when passing the cut topic, or some elements were not paid attention to during the explanation process. As a result, students have different perceptions. The course process was not interesting, exciting, with little attention paid to standard requirements. Some students did not pay attention to the topic because they were bored in class.

The lesson was not consolidated at the required level, i.e. the knowledge acquired by the students was not satisfactorily tested by the teacher using question-answer or various pedagogical factors.

By creating problematic situations in students' thinking activities, it helps to cultivate in them such formal qualities as curiosity, curiosity, intelligence, independence, and a desire to be creative.

Abu Rayhan Beruni (973-1048), a thinker and scholar, spoke about the creation of problematic situations in the minds of students, the activity of active thinking of the student, the thorough study of the material.

In his pedagogical and didactic views, he emphasized the need to reflect on various topics in the process of teaching and upbringing, not to bore the student, not to strain his memory, that is, not to strain. If a student moves from one subject to another, it is as if he is walking in a variety of gardens, and as soon as he passes one garden, another garden begins. One wants to see and watch them all. Every new event brings pleasure to a person "[1-4,7].

Thus, it is possible to create a problematic situation in which students develop a passion for learning, intellectual perceptions and mental experiences related to the problem-solving process that leads to search. [1-5]

The task can become a problem with the essence of this issue only if it can meet the following requirements

If it makes it difficult for students to know (learn) while thinking about the problem being studied. When students are interested in learning (learning) in every way.

In the process of analysis, students rely on previous experience and knowledge.

If the teacher notices that the students' interest in the topic is fading 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 devoted to the analysis of a detail (model), the teacher will address the students and ask why this hole of the detail is needed. To solve a problem, students begin to think in all directions, and different responses emerge in the thinking activity. Selects the most correct (if any) from the students' answers and comments on it. During this period, the lesson will continue using the students' focus on the topic.

The problem can arise in every lesson, in every subject, in every student, even in every teacher. The origin of problems does not arise by chance. To prevent the problem, the teacher will need to be thoroughly prepared for each lesson and the topic being covered, and plan and apply the question and answer to the problem so that it does not arise, sometimes creating an artificial problem situation. However, it can also be a good idea to create a problematic situation in the course of the lesson, that is, to ensure that the students' attention is focused on the topic. At the same time, it can be effective in inculcating in the minds of students by turning the most difficult time on the subject into a problem. It is carried out by the question-answer method in attracting the attention of students in solving the problem [2-7].

For example, in the description of pinned joints in detachable joints, the problem arises with the question of what changes occur in the pin after the screw is inserted into the slot. In explaining the situation, students are asked what changes have taken place, drawing their attention. Clarity is added based on the result of the question and answer. But some students may not understand this problem. It is then explained using a flat model prepared by the teacher himself, which is inserted into the slot of the pin (Figure 2.2). The cardboard pin is cut from the outside of the contour and shown as inserted into the pin slot. Then the resulting change is determined and the problem is solved. Another problem arises here. It is also the end of the thread of the pin and the contours at the beginning of the nest that cause it to pass into a single contour. To solve this problem, the pin is gradually raised upwards, the end of the thread is moved upwards, and if it is pushed back down again, it is joined by the contour of the beginning of the nest. It is impossible to get in from it because the non-threaded part of the pin does not enter the threaded hole [3-5]. There can be many problems that students face in the learning process and its causes are also varied.

## CONCLUSION

When the knowledge gained in previous lessons is thorough, students are less likely to face problems. Conversely, they will not be free from problems, and more and more problems will be added to their problems. As a result, the number of students taking vacant classes will increase. Therefore, in order to prevent all problems in a timely manner, the teacher should eliminate the problem by creating a problematic situation in a certain part of the lesson. That is, the approach to the problem must be tackled [3-5].

The following is a list of problematic issues:

What problem arises in the overall dimensions of a detail when it is drawn from the inside or outside of the thin lines relative to the contour of the detail, when the thin lines used to draw the lines are overlaid?

If the detail drawing is given in M1: 1, what is the problem if its dimensions are also set in M2: 1 after copying it in M2: 1?

What is the problem in generating axonometric projections?

Determine the problem that arises when drawing the assembly drawing in detail. What are the problems that arise when reading schematics?

The above examples help to increase the effectiveness of the lesson by creating a problem situation in the teaching of drawing.

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