

## EDUCATIONAL AND CREATIVE ACTIVITY OF THE STUDENT AND TECHNOLOGY OF ITS MANAGEMENT IN PROBLEM TEACHING OF PHYSICS

**Yusuf Makhmudov**

Professor of the "Fizics" department of the Termez state University, doctor of pedagogical science

&

**Sherzod Boymirov**

teacher Gulistan state University

UZBEKISTAN

### ABSTRACT

The article highlights the educational and creative activity of the student and the technology of his management in problem teaching physics.

**Keywords:** Creativity, activity, mativ, goal, tool, phenomenon, process, property, system, method, direction, mechanism, result, problem.

### INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

Educational and creative activity is a creative phenomenon that constantly moves on motives, goals, tools, results, it has its beginning and end. For the beginning of educational and creative activity is characterized by the establishment of educational goals, awareness, completion of their implementation, achievement of the expected result of education. Educational and creative activity in problem teaching of physics, in the made projects is modeled. This means that the training of the student is an educational project at the beginning of training, and at the end, the result of training.

The project of problem training in physics and the result achieved in its implementation can be presented in the form of two points lying on one straight line, making sure that there are many options for educational and creative activities at a distance from the beginning to the end of training.

The main task of periodic management of educational and creative activity is the choice of the most differentiated of these options and its scientific justification. This work involves the separation of General and individual features of training. The content of problem teaching physics, student learning goals, learning tools, teaching methods ensure the integrity of learning. Therefore, the disciple has General characteristics, but his result is individual. This means that the problem-solving physics training each student receives at the level of their capabilities and potential. The individuality of the result is a predisposition to educational and creative activity.

Educational and creative activity is a system of actions aimed at a specific goal in accordance with socially valuable motives, ending with a certain result on the basis of their own funds. There are two interrelated aspects of educational and creative activities. It is reading and knowing.

The reading aspect of educational and creative activity is based on the reader's memory. This is a traditional education, the implementation of which leads to the training of the student. For

example, for the purpose of the organization of studying of rules of measurement and weighing of weight on a scale of educational and creative activity of the pupil and determination of their balance are carried out in the following order:

1. If the scaly weight stands on an even place, then its two contours are in equilibrium. To make sure of the balance of the scaly sticks, a piece of cardboard, such as a small body weight, is put into it on its right or left stick to make sure. Listening to the teacher's explanations, the student follows the teacher and carries out his educational and creative activities. The teacher points out that on the scales put the stones on the right side, and the pulling body - on the left side.

2. The student exercises, according to the note of the teacher, which pulls on the left side of the weight, putting stones on the right side. Listening and performing cognitive and creative activities, the student remembers the second rule.

3. This action is performed by the student, following the teacher. Explain that a wet dirty body is not inserted on the pallet in a coat of scales, do not spill the liquid.

4. The student remembers the requirements of sanitary and hygienic rules that the teacher said. Thus, according to the explanations and instructions of the teacher, the student learns the following algorithm for weighing the body weight in a scale scale. Setting the scale on a scaly flat area; left shoulder paddon on the left, the right shoulder of paddon on the right; need to put scale on left shoulder to left shoulder, right shoulder to right shoulder; there is a balance of weights.

In this version of problem-based physics teaching, educational and creative activity is managed according to the teacher's explanations and instructions. The organization and carrying out in the same order of educational and creative activity in problem teaching of physics is accompanied by explanatory and visual educational expression.

Explanatory and visual education is intended for memorization, the teacher conducts educational and creative activities of the student in his own words, his actions (without explaining the reasons to show this or that event). In this regard, the task of managing educational and creative activities in the problem teaching of physics is to listen, follow-up.

Knowledge of creative and creative activity in problem teaching physics is focused on the thinking of students. The student independently learns the rules of weighing body weight in scaly scales. To do this, the following questions are posed to the student: under what conditions is the balance of the scales checked? In a pan put some rocks scales with the puck, in which the pallet is put pulling the body? In the process of searching for answers to questions, the student makes the following conclusions, as well as in educational and creative activities. Two volumes of educational and creative activity, that is, reading and cognition, is what dictates to each other. If in the first variant educational and creative activity by means of explanations and instructions of the pupil is controlled, in the second variant educational and creative activity by means of the questions set to the pupil is controlled.

To guide the student's educational and creative activities in problem teaching physics, the teacher applies educational problems and tasks to education. At problem training in physics it is expedient to use the collection of questions, tasks and tests. Problem teaching physics through experience, task, task, exercise, testing the student moves from one type of educational and creative activity to another. At problem training in physics through transition from one period to another theoretical knowledge, practical skills and skills of the pupil develop. In problem-based physics teaching, the student gains full mastery of the subject, starting at a lower,

higher level of proficiency, up to the level of knowledge, and then up to the level of knowledge at the level of consciousness.

At the present stage of development of secondary schools, the main principle of periodic management of educational and creative process of students corresponds to the system of "cause-and-effect" implementation of problem experience, the directions of this process are described below.

**The first direction.** Determine the system of educational and creative goals in the problem of teaching a student. The educational and creative goal of the student is the image in the mind of the result of problem learning. The image in consciousness puts the student's movements in a single direction. The desire to become a future physicist leads the student to work tirelessly on himself. Management of the educational-creative activity shall be carried out in accordance with the purpose of teaching and creative activities such as goal management training and creative activities of students.

In the educational and methodical literature written on the basis of the idea of modern pedagogical technology, there are three types of goals: the main goal, the intermediate goal, the goal equal to the action. For example, take a problem-based learning according to the law of Pascal. The pressure affected by the liquid or gas is transmitted to each point of the liquid or gas without change. For a comprehensive perception of the students of this law, the following three goals are allocated: awareness of the importance of pressure in technology and in the technique of production; intermediate goal: understanding the essence of Pascal's law. The intermediate goal must comply with state educational standards; performing problem experiments on the topic, conducting observations on the object, etc.

If problem teaching of physics is organized by the method of deduction, the student's activity begins with the state educational standard of the intermediate goal. The student first understands the essence of Pascal's law in the process of solving a problem issue, and then analyzes the examples of the application of this law in technology, technology and life. In the organization of educational and creative activities by deduction, practical work is carried out, then problem training is organized, observations are made. From experience and observations, the rule of Pascal's law is made.

The provision of education by deduction the student receives from the state educational standard for the mastery of practice of the educational-creative activity, and in the organization of training by deduction, from actions to actions in accordance with state educational standards and more. In both cases, the purpose of educational and creative activity becomes a factor in managing student performance. As a result, the possibility of periodic management of problem learning increases.

**Second direction.** Preliminary analysis of the real possibilities of educational and creative activity of the level of preparation of the student to solve a problem problem in physics. Scientific management of educational and creative activities involves the analysis of its current state. To solve the problem of transferring the pressure of liquids and gases, it will be useful for the student to remember the life experience. The following examples can be given. The principle of operation of the human heart, the work of the engine piston, the power of lifting domkarata, scuba diving, the changes that occur in the body of the climber when he rises to the top. The level of preparation of the pupil creates a basis for reasonable management of preliminary studying of possibilities of real educational and creative activity.

**Third direction.** To determine the system of didactic influence on the educational and creative activity of the student in the problem of teaching physics. After analyzing the degree of readiness of the student and the possibilities of real educational and creative activity, a system of their impact is developed. The contents of this system consists of the following phases: Preparing students for the solution of problem tasks by the subject; ensuring the comprehension and analysis of technology solutions to the problem tasks by the student; the strengthening of the information studied; a preliminary check of the result of solving problem tasks. Each of these stages has its own goals, means and methods. For example, in order to prepare the student to solve a problem problem on the subject, his attention is paid to the mechanisms working under pressure in full, tracking the transfer of pressure of liquids and gases, theoretical knowledge, practical skills and skills studied during the test, moving them to different situations. Depending on the results of the preliminary check, various corrections and additions will be made to the solution of the problem issue. In other words, the solution of the problem issue will be adjusted.

**Fourth direction.** Take into account the feedback acting in the educational and creative activities of the student. Feedbacks acting in the process of problem learning physics, there are two types: positive feedback-feedback with the excess of controlled variables; negative feedback-feedback with a decrease in controlled variables. For example, the solution of problematic issues on the topics of "interaction of bodies", "force" on the assimilation of the student recorded values that vary as follows: the influence of force on the body; the quantitative value of force; vector values; the effect of the force on a body depends on its modulus, direction, point of the production. These variables move from one (unexplored) to another (learned) state to the objective course of the problem experiment.

Feedback information is accumulated in the state of variables in accordance with their use by the teacher in his assimilation activities. For example, solve problem questions on the topics "Rickag and its balance conditions" "open the door by holding it by the handle" and "open the door by pushing it out of a position close to the loop". The problem is that the two methods are as follows. Which of the two ways is easy to open the door when applied? The student who solved this problem question will be able to quickly find the answer to the next problem. Is it possible to install the door handle near the handle? What is the importance of setting the door handle at a distance from the hinge? Given the content of the answers to the above problem questions, we can conclude about the degree of assimilation of the student problem solving. Therefore, variables that reflect feedback allow us to conclude about the degree of assimilation of the student.

**Fifth direction.** Correction of educational and creative activity of the student. Allows you to adjust the information collected through the implementation of feedback on the degree of assimilation of the student.

In terms of problem teaching physics, there are a number of ways to correct the educational and creative activity of the student. Addition to the program of educational and creative activities. The program is repeated with addition; repetition of the program of educational and creative activity without changes. For flaws that occur in the process of repetition, the solution of the issue is corrected; the construction of the application will be changed. If in the previous period of problem learning the problem question was solved using the method of deduction, then in the period when the construction of the educational material was changed to solve the problem question, the method of deduction will follow the implementation of educational and creative activities.

In the process of problem teaching physics, the correction of educational and creative activity is carried out in accordance with the changes made to it with regard to shortcomings, additions, modified educational situations, solving a problem issue arising in the student's activities.

Thus, problem teaching is the periodic management of educational and creative activity of the student, the identification of educational goals, the analysis of its real cognitive capabilities, the definition of the system of didactic impact on his educational and creative activities, the study of positive and negative relationships applied to educational and creative activities. Problem teaching of physics is carried out, in particular, by correcting the educational and creative activity of the student. This research work is related to problem periods of training and provides a description of the module of problem training, its effective application.

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