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THE EFFECTIVENES OF USING PROBLEM SOLVING IN TEACHING PROCESS

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Introduction

Increasing the effectiveness of educational process is considered as teacher’s main purpose and it means that it is essential to develop more efficient, productive and beneficial ways and techniques of improving children’s skills and cognitive activity. Using any special and creative methods allows optimizing student’s assimilation of knowledge. Learners’ degree of development is shown by research ability, memory, observation and the ability to analyze, synthesize something. Also learners should possess thinking ability and the experience of independent working. According to traditional methods students are delivered prepared, exact materials which do not give them the opportunity to study something themselves.

Problem-based learning is considered as one of effective process of teaching among untraditional methods. Problem-based learning is a type of developmental training, which combines independent systematic search activity of students with the assimilation of ready-made conclusions of science, and the system of methods is built taking into account goal-setting and the principle of problematic nature; the process of interaction between teaching and learning is focused on the formation of students' worldview, their cognitive independence, stable learning motifs and mental abilities in the process of assimilating scientific concepts and ways of activity determined by the system of problem situations [1, 531].

The topicality of this method is connected with the development of motivation for learning process. Students face with contradictions for what they need find the ways of solving them. In searching the possible solutions and overcoming difficulties students have a need to acquire new knowledge. Students learn to identify the problem and it is an integral thinking.

The main concept in problem-based learning is a problem situation. First of all, the problem situation characterizes the student’s psychological state which arise during the performing a particular task. The task requires the discovery of new knowledge about a subject. The main element of the problem situation is something unknown and new which should be discovered.

The peculiarities of problem solving:

1. Students accept new material in the process of solving theoretical and practical tasks.
2. Student’s cognitive ability and independence working can be improved because he tries to overcome difficulties themselves.
3. Student’s increased activity leads to development of positive motives and make them interested in learning process.

“To create a problem situation in teaching you need to put the child in front of the need to perform such a task, in which the knowledge to be learned will take the place of the unknown ” [2, 86].

There are several requirements for the problem being put forward. If at least one of them is not executed, the problem situation will not be created [3, 338].

1. The problem must be understandable to the students. If the meaning of the task has not reached the students, further work on it is useless. Consequently, the problem must be formulated in terms known to the students, so that all, or at least the majority of the students, understand the essence of the problem posed and the means to solve it.
2. The second requirement is the feasibility of the problem being put forward. If the majority of students cannot solve the advanced problem, they will have to spend too much time or their teacher will have to solve it; both will not give the desired effect.
3. The formulation of the problem should interest the students. Entertaining the form often contributes to the success of the problem.

4. A significant role is played by the natural formulation of the problem. If students are specifically warned that a problematic task will be solved, this may not cause them interest when they think that a transition to a more difficult one is coming.

The process of solving a problem situation consists of two stages. The first stage covers the formulation, adoption of a problem situation and identifying the unknown in the problem situation. The second stage includes a student's independent work under teacher's guidance. But teacher's role is just to create conditions which are useful in student's search of new knowledge. Using of problem situations in educational system contributes to the formation of creative abilities. At school we can use the following tasks in problem-based learning: problem tasks with contradictory, missing tasks; the mistakes that should be corrected; considering the situation from different points of view. The use of problem situations in primary school increases the effectiveness and productivity of work, so a teacher should create an atmosphere in which students have to explore a particular situation. Having solved a problem, answering a problem, finding a way out of a problem situation, a child makes a discovery that gives him the opportunity to feel like a scientist, an intellectual who has achieved a real understanding of the material being studied, because one cannot understand what he discovered. Children master the skill of planning educational activities to resolve difficult situations; able to conduct primary research, analyze, compare, draw conclusions.

Problem situation, according to A.M. Matyushkina is characterized as an active mental state that arises when a person performs a task under the conditions of the subjective discovery of "new knowledge". Thus, the core of the problem situation is an unknown new knowledge, which the student himself must discover in order to achieve his goal. To solve this problem, the student must use special actions to search for the necessary knowledge, his logical connections and the generalization of information [4, 65].

There are some techniques of creating a problem task:

1. The task must be appropriate to student's intellectual ability. The degree of difficulty of the problem depends on level of new material.

2. The same problem situation is given in different ways.

3. The teacher sends a very difficult problem situation by indicating to the student the reasons for not fulfilling the practical task given to him or the impossibility of explaining some facts to them.

It is possible to single out the most typical for pedagogical practice types of problem situations common to all subjects [5, 81].

The first type should be considered the most common and common: a problem situation arises, provided students do not know how to solve the problem, cannot answer a problem question, provide an explanation for a new fact in an educational or life situation, i.e. in the case of students' awareness of the insufficiency of the previous knowledge to explain the new fact.

In the second type problem situations arise when students clash with the need to use previously acquired knowledge in new practical conditions. As a rule, teachers organize these conditions not only to enable students to put their knowledge into practice, but also to face the fact of their insufficiency. Awareness of this fact by students arouses cognitive interest and stimulates the search for new knowledge.

In the third type a problem situation easily arises if there is a contradiction between the theoretically possible way of solving the problem and the practical impracticability of the chosen method.

As regards the fourth type, a problem situation arises when there is a contradiction between the practically achieved result of the fulfillment of the educational task and the students' lack of knowledge for its theoretical substantiation.

You can specify several basic ways to create problem situations [6, 144].

The first way is to encourage students to theoretically explain phenomena, facts, and external discrepancies between them. This causes the search activity of students and leads to the active learning of new knowledge.

The second method is the use of educational and life situations that arise when students perform practical tasks in school, at home or at work, during observations of nature, etc. Problem situations in this case arise when students try to independently achieve their practical goal. Usually, students, as a result of analyzing the situation, formulate the problem themselves.

The third way is to formulate educational problem tasks to explain a phenomenon or search for ways of its practical application. An example would be any research work of students in an educational and experimental area, in a workshop, laboratory or study room, as well as in lessons on humanitarian subjects.

The fourth way is to encourage students to analyze the facts and phenomena of reality, which generates contradictions between everyday ideas and scientific concepts about these facts.

Conclusion

Finding solutions to problem situations allow to achieve goals which can make people more intelligent, communicative and successful not only in learning at school, also in life. Having solved a problem, answering a problem, finding a way out of a problem situation, a child makes a discovery that gives him the opportunity to feel like a scientist, an intellectual who has achieved a real understanding of the material being studied, because one cannot understand what he discovered. Children master the skill of planning educational activities to resolve difficult situations; able to conduct primary research, analyze, compare, draw conclusions. With the help of problem solving students will be interested in learning new material, try to participate in discussions actively and express opinions, suggest ideas. Thus, we can say problem solving is able to develop people's personality in general and one of effective method in teaching process.

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