CURRENT RESEARCH JOURNAL OF PEDAGOGICS
(ISSN –2767-3278)
VOLUME 04 ISSUE 09 Pages: 65-68
SJIF IMPACT FACTOR (2021: 5. 714) (2022: 6. 013) (2023: 7. 266)
OCLC – 1242041055
Publisher: Master Journals

Journal Website: https://masterjournals.com/index.php/crjp

Research Article

THE USE OF PROBLEM-BASED TEACHING TECHNOLOGIES IN THE TRAINING OF SPECIALIST SCIENCES

Submission Date: September 20, 2023, **Accepted Date:** September 25, 2023,
Published Date: September 30, 2023
Crossref doi: https://doi.org/10.37547/pedagogics-crjp-04-09-12

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ABSTRACT

In this article, it is justified that, conducting classes with problem-based learning, taking into account personal factors in teaching disciplines of the specialty, students have the opportunity to work on themselves, apply methods of scientific knowledge, acquire skills to solve problems.

KEYWORDS

Teacher, student, problem situation, method, problem learning, trust, respect, education, independence.

INTRODUCTION

During the years of independence, the country has implemented a set of measures aimed at building a legal democratic state, a strong civil society, developing an economy based on free market relations and the priority of private property, creating conditions for a peaceful and prosperous life of the people, a worthy place of Uzbekistan in the international arena.

In particular, in order to implement the tasks defined in the state program, on April 20, 2017, the Decree of the President of Uzbekistan No. PP No. 2909 "on measures to further develop the higher education system" was adopted. This resolution is aimed at radically improving the system of higher education, fundamentally revising the semantic content of personnel training in accordance with the priority tasks of the country's socio-economic development, and creating the necessary conditions for the training of highly qualified specialists at the level of international standards.[1]

The Law of the Republic of Uzbekistan "On Education" dated September 23, 2020 No. 637, adopted in our country, radically changed the content of the education system. In particular, major changes have

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been made to the curricula of higher education, based on the requirements of time and life.

When the educational process is organized on the basis of modern pedagogical technologies, there are several interrelated stages of knowledge assimilation, and such cases as the transfer of ready-made knowledge to the student's mind, memorization, memorization, retelling, written expression of thought represent levels of knowledge, understanding. These levels do not require creativity on the part of the knower. At subsequent levels of assimilation, students are required to apply the acquired knowledge in practice, achieve certain results, supplement, enrich, modify, and have their own independent point of view. For these levels of assimilation, the problematic approach is significant.

The introduction of modern pedagogical technologies into the educational process in the learning process has made problem-based learning an urgent pedagogical problem in modern conditions.

For this reason, the technology of problem-based learning in teaching special disciplines has its own characteristics: it not only equips students with a certain amount of knowledge, but also forms a number of practical skills and abilities. The methods and means used to develop these skills and abilities may be different. Pedagogical practice shows that the expected result can be achieved only if students show creativity and are active. This can be achieved by learning with problem-based learning technologies. The essence of this method lies in the fact that when getting acquainted with new material, students do not receive ready-made information. They are faced with problem situations, the solution of which must be found, and in the process of solving they independently make decisions based on the knowledge gained.[2]

For example, when drawing up a system drawing in the discipline “Hardening Engineering and Internal Combustion Engines”, students are asked the question: - "What parts does the cooling system consist of?". Based on their life experience, students can easily answer such questions. After that, additional information about the operation of the cooling system When students answer this question, a problematic situation arises.

In order for the solution of problematic tasks in the course of the lesson to give its results, it is necessary to maintain the interest and mental activity of students from the beginning to the end of the lesson. To do this, it is necessary to put the problem in a general form, to strive for its connection with previously studied material, with the practical experience of students. At the same time, the task must be solved in a certain sequence, with a discussion of the facts, with feedback and with implementation during the lesson.

For example, in a practical lesson in the discipline "Theory and Dynamics of Internal Combustion Engines" without providing students with ready-made information about cooling systems, it is possible for students to highlight details about the cooling system on their own. Students are provided with a guide to independently complete the task on the selected part, determine the details of the cooling system. should be the condition of the parts of the cooling system? they answer the question in different ways: “how does the fluid flow”, “what cools the fluid”, and so on. “What drives the fluid flow? This question should be answered “pump”.

Thus, without explanation, it is possible to single out the details of the cooling system, that is, the students are given a task, for the solution of which the students need to independently select the cooling parts with their own hands and be able to independently

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distinguish the details. The teacher sums up the answers, highlighting the details of the cooling system, but each student independently analyzes them on their own. Students do this task with interest.

The problem-based teaching method develops students' thinking skills, helps them understand the lesson faster, and remember it better. When applying problem situations, the teacher must also take into account the age and individual characteristics of students. The teacher's questions generate different answers from different students. For example, in the process of performing practical laboratory work on the division into wound and wound parts in the discipline "Reliability Theory and the Basics of Diagnostics", students are asked to distribute pieces of wound and wound parts, followed by the definition of wound parts. Students can cope with the task even without explanation, after which students learn it better if the teacher summarizes their answers, completes them and confirms their point of view.[3]

The formulation of the problem situation encourages students to think, compare and analyze the object under study and, as a result, allows them to better assimilate the educational material.

In some cases, the use of handouts (cards) to create a problem situation also gives a good effect. As you know, in practical classes in the discipline "design and construction of tractors and agricultural machines", students are given a map of the structure of a part or the sequence of the progress of its part.

On the map of such a technological sequence, some points are deliberately omitted, in the above example these are the 2nd and 4th points, since these operations were studied and performed in previous trainings. Having received a technological sequence map similar to the one above, students complete the task by filling in the blanks on their own.

From this it can be seen that problem situations can be formed at each stage of learning. For easier perception of problem situations by students, it would be advisable if the topic covered is known in the previous lesson, students will be given homework. For example, before studying the topic "construction of an indicator diagram of an internal combustion engine", students may be tasked with drawing up a calendar plan and, based on the results of a thermal calculation, using an analytical or graphical method, construct an indicator diagram for the engine's nominal mode. In the next lesson, a discussion of the options proposed by students begins, and in the process reveals and explains incomprehensible questions to them.

The development of a problematic task requires a lot of work and pedagogical skill. As a rule, after repeated experimentation, the task has the opportunity to compose the best option in the study group. Nevertheless, such tasks allow us to connect the theory with the real situation.

The method of problem-based learning requires deep preparation from the teacher, requires a thorough analysis of the educational material, and the selection of optimal problem situations from it. The proposed ways of organizing classes will increase students' interest in the subject being studied and make their work more productive.[4]

A creative approach to the study of special disciplines is an important professional quality for future specialists. Therefore, when studying these disciplines, it is necessary to teach students to consciously fulfill the tasks set, analyze, look for ways and means of independently solving the tasks set, plan work correctly, and mobilize all their capabilities for its implementation. It is necessary to instill in students a critical attitude to their work, the ability to identify mistakes made, find ways to correct them,

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independently acquire knowledge and apply the acquired skills in practice.

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