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Problem-Based Teaching Students of Technological Education in Professional Subjects

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Abstract: Problem-based learning is the study of educational material in a way that creates cognitive tasks and problems in the minds of students, similar to scientific research. The article discusses the methodology of problem teaching of students of technical universities in their specialty.

Key words: technology education, problem learning, special subjects, problem learning, methods, techniques, advantages.

In the pedagogical practice of technological education, teachers and students distinguish three different methods of problem-based learning according to the system of actions. These are problem-solving, partial search, and research methods. The essence of the method of problem-solving is to create a problematic situation in which the teacher not only announces the final conclusion of the topic, but also develops a way to reveal it to some extent, finds internal contradictions, demonstrates ways of scientific research. Problem-based learning is based on a special kind of motivation - problem-solving, and therefore requires adequate didactic content of the material that presents the problem situations as a chain in vocational colleges. Problem situations can vary in terms of unknown content, level of difficulty, type of information relevance, and other methodological features. Modern problem-based learning theory distinguishes between two types of problem situations: psychological and pedagogical. The first is about student activities, and the second is about organizing the learning process. The pedagogical problem situation used should be created with the help of questions that activate the teacher's movement, show the novelty, beauty and other special qualities of the object of knowledge. Creating psychological problems is very personal.

The problem-based teaching methodology used in the teaching of special subjects includes the following five stages. They are:

- understanding of the problem situation;
- problem statement based on the analysis of the situation;
- search for a solution to the problem;
- Proof of the hypothesis;
- check the correctness of the solution to the problem.

Creating a challenging learning environment for teaching a subject is a way of presenting a problem to a student. In the organization of the teaching of special subjects, all educational activities can be planned and sequentially set by the teacher of the college and solved by the

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students through educational activities. Problem-based learning is based on the synthetic activities of students in the process of analysis and thinking. It is a type of heuristic research aimed at developing students' knowledge and creative abilities, as well as their ability to work independently. The task of the problem lesson is to master the BKM of specialty subjects, to activate and develop students' mental operations (analysis, synthesis, analogy, comparison, generalization, etc.), to develop creativity, to involve students in project, research activities.

Problem-solving methods are: research, inductive (from private to general), detective (from general to specific), and research and design.

The skill of the teacher is often reflected in the organization of the problem situation in the specialty. In problem-based teaching of specialty subjects, the college teacher remains the leader of the learning process, but as in the traditional group, he or she must act as a person who communicates knowledge and be a developer, an observer of students' mental activities. Corrects mistakes, explains suspicious tasks. The process of implementing problem-based learning in specialty subjects was itself a problem: "What training do college teachers need to undergo in order to successfully complete problem-based learning in specialty subjects?" raises a very important issue. A college teacher who specializes in a particular subject must be able to explain the content of the course, as well as be well versed in research methods. By acting as an organizer in problem-based learning, the college teacher is intended to be more of a leader and partner than a source of ready-made knowledge, a carrier, and a directive for students. In preparation for problem-based lessons in a specific subject, the teacher should:

be aware of the problematic nature of the situations faced by students and be able to present to the group real-world learning issues related to a particular subject in a way that students understand;

coordinator of all processes performed by students in a particular subject (problem solving, problem setting, solving, checking the results, etc.) and the implementation of partner tasks for students, the study of problems in various areas of materials for specialty subjects assist individual students and groups while avoiding directive methods;

to try to involve students in the process of in-depth study of the problem, to encourage creative thinking students with the help of skillful questions;

the teacher has the experience of being patient and resilient in offering help to students' mistakes in their efforts to find personal solutions, or of referring them to the necessary sources of information when students are unsure of their own solutions. should.

Since problem-based learning is used in other methods, it cannot be considered as a special method or a new system of teaching special subjects. It is better to call it a special approach to the organization of teaching a special subject, which is primarily in the nature of the organization of students' learning activities. Of course, not all science-specific material is suitable for creating a problem situation. Non-problematic elements of study materials do not include all the specific information, including digital and quantitative data, evidence, dates, etc. that cannot be "disclosed". Problem-based learning can be used to master the generalized knowledge of a particular subject in terms of concepts, rules, laws, causality, and other logical connections. It is necessary when the problem of special education of students is set in the way and way of mental activity, which is directly necessary for the solution of research problems, which are acquired in the special disciplines.

Problem-based learning has a number of advantages:

- develop students' mental strength (conflicts force them to think of ways to find a way out of a difficult situation);

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- independent activity of students (independent viewing of the problem by students, expression of the problem and the problematic situation, independent choice of a plan for their solution, etc.);
- to allow students to develop creative thinking (independent application of knowledge, ways of action by students, independent search for non-standard solutions):
- to provide students with a stronger acquisition of knowledge (students learn the knowledge of a particular subject better independently and retain it for a long time);
- Students develop analytical thinking (conditions are analyzed, different options for solutions are evaluated) and logical thinking (it is necessary to prove the correctness of the chosen solution).

Problem-based learning equips students with methods of knowing the world around them, develops purposeful observation skills and abilities, develops the ability to generalize and summarize basic laws by substantiating them, and arouses interest in possible research. Students will be able to quickly understand the nature of the situations studied in the majors and provide reasoned answers.

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