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Technology of Problem Education in the Training of Vocational Education Teacher

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Abstract*: More and more stringent requirements are imposed on the training of a vocational education teacher. Therefore, there is a need to search for technologies that would meet the requirements of the state and society. One of these technologies is the problem learning technology. The purpose of the article is to consider the main aspects of educational technology implementation in the preparation of a vocational education teacher to form his professional competence. The article demonstrates the essence of problem-solving technology in education, reveals the levels of solving the problem task and describes the steps for students to solve the problem situation. The case method, the project method, the dialogue method, and the research methods are identified as the methods used in technology of problem-based learning implementation.

Keywords: technology of problem education, teacher of vocational education, problem situation, professional competence.

I. INTRODUCTION

The modern state and society presents new requirements for a teacher of vocational training. There is a need for qualified competent personnel who are able to carry out their activities at a high level. The teacher's training should be carried out using various educational technologies [1]. Technologies of problem education are one of the most popular in the modern space of vocational education [2]. This is due to several factors.Problem-solving training is very productive: the constant setting of tasks for solutions ensures the development of erudition, the ability to systematize and accumulate knowledge, forms non-standard thinking, allows you to see the situation in different aspects and find many ways to solve a problem which contributes to professional competence development of a future professional education teacher. Therefore, there is a need to identify the main aspects of problem education technology use for graduates' competence development.

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II. INTERACTIVE TECHNOLOGIES IN EDUCATIONAL PROCESS

A. Literature review

The technology of problem-solving education was carried out by such domestic researchers as P.L. Kapitsa, M.I. Makhmutov, T.I. Shamova and others.

The organization of educational process using the ideas of problem-based learning is presented in the works of I. Ya. Lerner, V. Okonya, M.N. Skatkina and others.

Studies of the problematic approach in education were carried out by T.I. Shamova. The implementation of problem-solving principle, creating a problematic situation when setting out the content of educational material is presented in the works of V.T. Kudryavtseva and A.M. Matyushkina. V. Okon talks about the need to use problematic methods in solving educational problems. Studies have shown that the following components are included in the structure of a problem situation:

- it is necessary to single out a component or action in the training session that provides interest in learning a new one, whether it is an attitude, method or condition for future action;
- novelty, discovery of previously unknown and disclosed when solving a problem situation;
- taking into account the student's capabilities in solving a problem situation and tasks.

There are three main signs in a problem situation: the unknown, the contradiction and the need.

B. Methodology

The article discusses the technology of problem education implementation in the training of a teacher of vocational education.

The solution of this problem is solved by teachers of vocational training in several stages: statement of a pedagogical problem in the form of questions, assumptions, hypotheses, scientific facts; fulfillment of tasks by students. At this stage, the teacher provides little help by asking suggestive questions; search for a solution to the problem, comparing the facts, overcoming contradictions; drawing up a solution to a given problem, transition to a solution, its justification; analysis (control) of the results.

The technology of problem-based learning implementation is based on the use of the case method, the project method, and various research methods. The form of research organization can be varied: experiment, fact-finding, report preparation, modeling and design.

III. RESULT AND DISCUSSION

In present-day scientific perception, the technology of problem education is interpreted as a type of developing educational process in which the teacher formulates a controversial situation whereas students carry out active

independent activities to find solutions to this problem [3]. The use of problem-based learning requires and develops in students increased activity of mental operations [4].

Organizing a problem situation during the lesson, the teacher poses a learning task and shows students the importance of assimilating new knowledge to solve it [5].

Students solve a problem situation in several stages:

- statement of a pedagogical problem in the form of questions, assumptions, hypotheses, historical or scientific facts;

- performance of assignments by students. At this stage, the teacher provides little help by asking suggestive questions;

- search for a solution to the problem, a comparison of the available facts, overcoming contradictions;

- drawing up a solution to a given problem, the transition to a solution, its justification;

- analysis (control) of the results [6].

Figure 1 shows the results of students' assessments before and after the introduction of problem-based learning technologies.

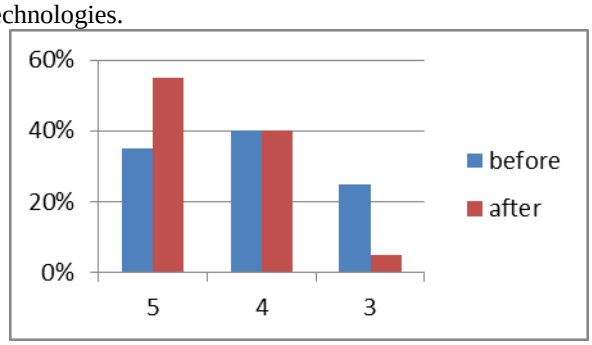

Fig. 1. Student assessment results

The percentage of positive assessments after the introduction of problem-based learning technologies has grown significantly.

The technology of problem education at the university develops students' competencies that are necessary for successful work, i.e. those skills and abilities that are required in practice [7]. Since modern higher education is characterized by a reduction in the classroom load and an increase in independent work, problem-based learning technology is an integral element of educational process [8]. Its advantages, when students work independently, are as follows [9]. The essence of this pedagogical technology is to raise such a question for students that will have to make them deviate from the patterns [10]. When organizing educational process, it is important to complicate tasks and questions gradually with the aim to create a problem situation. To solve this problem situation new knowledge is needed. The search for missing information is activated, it can be both individual and in interaction with other participants of educational process [11]. Thus, the student receives new knowledge not in ready-made templates and patterns provided the teacher, but as a result of his own active cognitive activity [12]. A feature this principle application is the destruction of thinking stereotypes, the formation of independent thinking, which in turn is an important tool in shaping professional competence of a vocational education teacher [13].

When implementing the technology of problem education, the dialogue method is actively used [14].

The interaction of the teacher with the students in solving the problem situation, when the problem is posed, its solution is found, activates the activity of setting the problem, putting forward ideas, establishing assumptions and evidence, or refuting hypotheses [15]. The research method is organized by posing theoretical and practical research tasks in front of students with a high level of problem [16]. The future teacher of vocational training reveals the essence of a new concept and a new mode of action independently. The form of research arrangement can be varied: experiment, fact-finding, report preparation, modeling and design. When implementing the technology of problem education, the case method is used. Case as a method of analysis of specific situations, most effectively allows you to combine theory and practice; analyze and sort information to solve problems in pedagogical disciplines, develop skills, transfer acquired knowledge to a new situation and make decisions in standard and non-standard situations. The project method is widely used while implementing the technology of problem education.

When the teacher of vocational training competence development takes place, the following levels of solving the problem task are used:

- the first level - the teacher poses a problem, formulates it and makes students search for ways to solve the problem independently;

- the second level - the teacher points to a problem, students formulate and solve it by themselves without the teacher's assistance and guidance;

- the third level - students themselves discover, formulate and solve a pedagogical problem. The technology of problem-based education, with its correct and systematic application, makes it possible to bring students closer to obtaining necessary theoretical knowledge and develop their ability to self-educate and improve this knowledge, as well as master the principles of pedagogical courses and develop their professional abilities as comprehensively and deeply as possible.

IV. CONCLUSION

Using the problematic approach in a vocational education teacher training helps to develop the required competencies and students' ability to self-management to the full. Under modern conditions it is an essential quality of a future specialist. The result of the problem-based learning technology is the development of professional competence through the acquisition of students' skills to identify a problem, set a goal, exercise independent control of their work and choose effective methods for its implementation.

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